TOWN OF ADDISON

PUBLIC WORKS DEPARTMENT — **LETTER OF TRANSMITTAL**

Project	Addison Road Widening

To:

Marty Murphy
JRJ Paving, L.P.
2277 N. Masch Branch Rd.
Denton, TX 76207

Copies to: Project File

From:

Aaron Russell, P.E.
Assistant Director of Public Works

Date: January 29, 2007

Instructions:

Document:

- ☐ LETTER
- ☑ REPORT
- ☐ DRAWING / PLANS
- ☐ SPECIFICATIONS
- ☐ OTHER _____

- ☐ ORIGINALS
- ☐ COPIES

Submitted:

- ☐ AT YOUR REQUEST
- ☐ FOR YOUR INFORMATION
- ☐ FOR YOUR REVIEW / COMMENT
- ☑ FOR YOUR FILE
- ☐ FOR YOUR APPROVAL / SIGNATURE

Via:

- ☑ MAIL
- ☐ EXPRESS MAIL
- ☐ COURIER
- ☐ PICKUP
- ☐ DELIVERY

Please note:

☐ REVISIONS ☐ ADDITIONS ☐ DELETIONS ☐ OTHER _____

Enclosure list:

Description:	Revision:	Date:	Copies:
Addison Road Widening SWPPP	N/A	1-30-07	1

Comments:

16801 WESTGROVE DRIVE
ADDISON, TX 75001
PHONE: (972) 450-2879 FAX: (972) 450-2837

STORM WATER POLLUTION PREVENTION PLAN

"SWPPP"

ADDISON ROAD
PAVING AND DRAINAGE - PHASE I

FROM BELT LINE ROAD TO ARAPAHO ROAD
ADDISON, TEXAS

PERMITTEES:

TOWN OF ADDISON
5350 BELTLINE ROAD
ADDISON, TEXAS 75254

AND

JRJ PAVING, LP
P.O. BOX 2136
DENTON, TX 76202

TOWN OF ADDISON - COPY

Prepared by:
Storm Water Solutions
422 East I-30
Suite C
Royse City, Texas 75189

January, 2007

ACTION ITEM SHEET

Owner	Addison Road Paving and Drainage – Phase I
SWPPP Certification: Appendix A	A Company officer will need to sign the SWPPP Certification – This will remain in the SWPPP at all times.
Delegation Letters: Appendix C	Make of copy of the Delegation Letter on your Company Letterhead, a Company officer will need to sign the Delegation Letter and then a copy will need to be mailed to the TCEQ in the envelope that has been provided.
Inspection Reports: Appendix E	N/A
Notice of Intent (NOI) **Notice of Termination (NOT) :** **Appendix F**	N/A
Construction Site Notice: Appendix G	Storm Water Solutions will post all Notices (CSN) for the Owner and General Contractor on the SWPPP sign provided by Storm Water Solutions. A copy of your Signed Construction Site Notice will need to be faxed to Storm Water Solutions @ 972-636-7719 for posting. **The Owner will need to provide a copy of the signed Construction Site Notice in the envelope that has been provided to: The Town of Addison**

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January, 2007

Table of Contents

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I. INTRODUCTION

This Storm Water Pollution Prevention Plan (SWP3) has been prepared for the proposed construction for; Addison Road Paving And Drainage - Phase I located from Belt Line Road To Arapaho Road, in the City of Addison, Dallas County Texas. This plan includes the elements necessary for compliance with the Texas general permit for construction activities (Permit No. TXR 150000) administered by the Texas Commission on Environmental Quality (TCEQ) under the Texas Pollutant Discharge Elimination System (TPDES) Program.

The purpose of this SWPPP is to provide guidelines for preventing or minimizing soil and pollutants that originate on the construction site from flowing into surface water bodies during the construction period. It addresses the principal activities known to disturb significant amounts ground surface during construction. This SWPPP terminates when areas disturbed for this project reach full stabilization. From a regulatory standpoint, the site has achieved full stabilization once all areas are paved or have at least 70% vegetative coverage.

The Texas general permit for construction activities provides for the following types of non-storm water discharges, which could originate at the site:

1. Discharges from firefighting activities and fire hydrant flushings;
2. Water used to wash vehicles or control dust (without detergents or soaps)
3. Potable water sources, such as flushing new water distribution pipes;
4. Uncontaminated ground water;
5. Irrigation drainage;
6. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed)

The storm water management controls included in this SWPPP focus on providing control of pollutant discharges with practical approaches that utilizes readily available techniques, expertise, material and equipment. The necessary forms for implementing the SWPPP are included in the Appendices including the Contractor and Sub-Contractor Certification, Delegation Letter, Notice of Intent (NOI), Construction Site Notice, Project Description, and Inspector Qualifications and Reports.

The owner referred to in this SWPPP is the City of Addison. The General Contractor is JRJ Paving, LP.

A. Responsibility of Operators

The Owner/Operator with control over the construction plans and specifications is The City of Addison. The owner's responsibilities are the following:

a) The operational control over plans and specifications for all areas of the project.
b) To ensure that the project specifications will provide adequate best management practices (BMP) to meet the requirements of the TPDES General Permit.
c) Owner will notify the Contractor in a timely manner if any modifications are necessary to remain compliant with the general permit.

The Contractor/Operator with day-to-day operational control of the construction activities is JRJ Paving, LP. The Contractors responsibilities are:

a) To ensure that this project meets the requirements of the TPDES General Permit.
b) Post the signed, dated copy of the Notice of Intent and Construction Site Notice, prior to the start of construction, at the construction site in a location that is readily available for viewing by the general public and all inspectors from local and state agencies.
c) A Storm Water Pollution Prevention Plan (this SWPPP) must be completed and implemented for the project prior to Construction.
d) A copy of the signed and certified construction site notice must be provided to the operator of any municipal separate storm sewer system receiving the discharge at least two days prior to the commencement of construction activities.
e) A signed copy of the SWPPP must be retained at the project site at all times
f) The contractor and all subcontractors must sign the appropriate certification statement in Appendix A
g) This SWPPP must be updated each time there are significant modifications to major construction activities, contractors or pollutant control practices.
h) The contractor will provide qualified personnel to conduct inspections of the project as described previously to assure compliance with the SWPPP. Based on inspection results, the SWPPP and pollution prevention control techniques must be modified by the contractors if necessary to assure that storm water or the identified non-storm water discharges are the only discharges leaving the project site. Refer to TPDES general permit for specific requirements.
I) Discharge of hazardous substances or oil into storm water is subject to reporting requirements. Refer to TPDES general permit for specific guidelines. Each contractor is responsible for complying with these reporting requirements.
j) Questions about the TPDES program can be directed to the Texas Commission on Environmental Quality. A copy of the TPDES General Permit Number TXR150000 is included for reference.

II. PROJECT DESCRIPTION

A. Nature of Construction Activity

This project consists of; Reconstructing Addison Road with reinforced concrete pavement and drainage structures, to turn the existing 4 lane asphalt roadway to a 5 lane concrete roadway. Activities include; erosion control installation, preparation of right of way, excavation and embankment for roadway, storm sewer and utility construction, lime stabilization and paving, lastly landscaping and final stabilization.

Construction activities include three principal groupings of activities: BMP installation, grubbing/clearing, and grading/revegetation. These activities will be overlapping to some degree. Sediment control BMP installation will begin, grading/revegetation activities will follow, excavation for utilities, placement of lime, hotmix and paving, and landscaping / seeding and sodding for final stabilization. All the above activities will be consecutive thru each phase of the project.

No onsite dirt work will begin until a minimum of 48 hours after the Construction Site Notice has been submitted to The City of Addison. Forty-eight hours after submitting the Notice, mobilization of equipment may begin with installation of erosion controls for the first phase of this project.

The second grouping of activities includes clearing and grading, preparation of right of way, stockpiling and removal, excavation and embankment for the roadway and storm sewer, lime stabilization, paving.

The last activities will be placement of topsoil, final grading and landscaping. Following the final site clean up and stabilization, temporary erosion controls will be removed from the site.

B. Sequence of Construction Activities

The anticipated sequences of construction activities, which will disturb significant amounts of soil, are provided below. Overall, the project is anticipated to begin 48 hours after submitting the Construction Site Notice and after the utility locates are confirmed, and is scheduled to take approximately 10 months to complete.

Specific activities include:

- Installation of sediment controls will begin at the time of mobilization for the equipment and materials. These activities will be the first activities at the site and will be completed prior to any dirt work.
- All construction contractors staging will take place at the site and no offsite staging areas will be used.
- Preparation of R.O.W., establish perimeter controls using silt fence and rock filter dams as necessary for temporary erosion control.
- Grading, clearing and excavation.

- Utility construction
- Grading and forming of streets and curbs
- Place lime, hotmix and paving as soon as possible
- Final grading, Landscaping and final stabilization
- When construction is complete, the site is stabilized and approved by the Engineer, remove all temporary sediment controls and reseed any areas disturbed by their removal

A detailed site description may be found in Appendix D: Project Description

General Contractor

1. Provide stabilized Construction Entrances and Sediment Barriers. Clean the existing rock and /or add rock as necessary to prevent mud and dirt from being tracked onto existing public streets.
2. Maintain Sediment Barriers and Silt Traps (if installed) throughout the duration of the project. Replace if required. Remove silt and mud, if required in order to restore sediment containment capacity.
3. Proceed with underground utility construction, subject to the pollutant control requirements of this plan.
4. Upon completion of the mass grading and site work phase, make sure the Construction Entrances, Sediment Barriers and Sediment Traps are clean and functional.
5. Maintain erosion control measures during all phases of demolition, grading and clearing, site paving and temporary vegetation.
6. Remove and dispose of the Construction Entrances, Sediment Barriers and Sediment Traps once their use is no longer needed.

Locations for structural controls and details are shown on the Erosion Control Plan (Appendix D)

C. Discharges Associated with Construction Support Activity

Batch Plant: An onsite concrete batch plant is sometimes used during development of large projects to produce concrete on the site. The runoff from the on-site batch plant must be treated with BMP's suitable for on-site concrete batch plant operations.
Equipment Staging Areas: Additional erosion controls may be needed to prevent offsite tracking. Any petroleum products stored in the staging area must be in closed containers in good condition to prevent leaking.
Material Storage Areas: These areas should be maintained to keep material limited on the site to materials needed the job. Liquid containers must be kept closed when fluids are not being removed, and drip pans must be used under any containers with valves or spigots attached.

***Stock Piles*:** Areas where excavated or additional materials (fill) will be stored will be shown on the erosion plan.

Locations for structural controls and details for the Equipment Staging, Material Storage areas and Stockpiles will be indicated on the Erosion Control Plan. At this time it is not anticipated that a temporary Concrete Batch plant will be a part of this project.

D. Estimate of Total Site Area and Disturbed Areas

The total area for this project consists of approximately 4 acres of which 4 acres will be disturbed by this project.

E. Estimate of Runoff Coefficient

The preconstruction project has a Rational Method runoff coefficient value of approximately 0.53. After the construction is complete, the post – construction project will have a runoff coefficient of approximately 0.92.

F. Existing Site Conditions and Soil Data

The project site is an existing asphalt roadway. Soils primarily consist of brown clays with limestone fragments. See Geotechnical report for additional information.

G. Storm Water Management

Storm water runoff will be provided by ditches, inlets and storm sewer system which carry drainage within the R.O.W. to the lows within the roadways and project site, which drains to natural facilities.

H. Receiving Waters and Wetlands

The potential receiving water body is: Rawhide Creek. To the best of our knowledge, this project is not located within any known wetland areas.

I. Standard Industrial Classification Codes

The major construction activities will have the Standard Industrial Classification codes listed below:

1611

J. Endangered Species Information

To the best of our knowledge, there are neither endangered or threatened species nor critical habitat found in the proximity of this project.

See Appendix J

K. Historic Preservation Information

There are no written agreements regarding historic preservation with respect to this project, to the best of our knowledge.

See Appendix J

L. Notice of Intent / Notice of Termination

Since the project covered by this Permit has a combined exposed area less than 5 acres it is classified as a "Small Construction Activity" per part II of the TPDES General Permit No. TXR150000. Being a "Small Construction Activity" the site is not required to submit an NOI.

III. STORM WATER POLLUTION MEASURES AND CONTROLS

A. Erosion and Sediment Controls

Erosion and sediment control practices can be divided into three broad categories: (1) soil stabilization, (2) structural controls, and (3) management practices. Each of these categories has temporary and permanent control measures to be considered. Soil stabilization and structural practices will be installed and maintained in accordance with the Project construction drawings and specifications. Management practices are construction management techniques that, if properly utilized, can minimize the need for physical controls and possibly reduce costs. Erosion and Sediment controls are necessary to minimize soil and associated organic debris that can become a pollutant to storm water runoff

1. Soil Stabilization

Stripping of vegetation will be conducted in a manner that minimizes erosion. Cut and fill operations will follow the grading plans and be kept to a minimum where practicable. The Contractor is responsible for planting vegetation (and establishing at least 70% coverage) on all ground disturbed during construction. The Contractor is responsible for watering and maintaining the vegetation until final project is accepted by the Owner.

a. Temporary Seeding

Within 14 days after construction activity ceases on any particular area, all disturbed ground that will be dormant for longer than 21 days shall be seeded with fast-germinating temporary seed and/or protected with mulch. (This requirement applies to all contractors.)

b. Permanent Seeding

All areas of final grade shall be seeded or sodded within 14 days after completion. Except for small, level spots, seeded areas might need to be protected with mulch. Permanent soil stabilization shall be accomplished by seeding or sodding all landscaped areas.

Refer to Appendix H "Best Management Practices" for details on temporary controls required for the site.

2. Structural Controls

Erosion and sediment controls will be constructed and maintained according to the standards in the construction drawings and specifications, and the site map. Listed below are the structural controls to be used at the Project site.

- Sediment Control Fence
- Inlet Protection
- Rock Berms
- Seeding and sodding

3. Storm Water Management Practices

The following are some management considerations, which may be employed in conjunction with the erosion and sediment controls described above:

1. Construction will be sequenced so that no area remains exposed for unnecessarily long periods of time.
2. Materials are scheduled to be on-hand to complete the work without delay
3. The time of year is considered, and crews will be prepared for sudden thunderstorms.
4. Erosion and sediment controls will be installed immediately.
5. A regular maintenance schedule for erosion and sediment control practices should be carried out.
6. One individual is designated as responsible for implementing the erosion and sediment control plan.

4. Storm Water Management Controls

Storm water management during construction will consist of containing pollutants on the site. Soil is the most significant potential pollutant. It will be contained by the Silt Barriers and Sediment Traps. These controls must be properly installed and maintained by the contractor in order to contain soil on the site. Chemicals, fuels and similar potential pollutants will be contained by careful handling and storage and by utilizing portable or plastic covered Earth Containment Berms as needed.

B. Other Controls

1. Dust Control / Off-site Vehicle Tracking

During construction, water trucks will be used by each contractor to reduce dust as needed. After construction, the site will be stabilized as described elsewhere in order to reduce dust. Construction traffic shall enter and exit at the site at a Construction Entrance, which will be stabilized after the completion of the project.

Construction traffic will enter and exit the work area at a Construction Entrance with a stabilized rock entrance or equivalent device. The purpose of the rock entrance is to minimize the amount of soil and mud that is tracked onto existing streets. If sediment escapes the project site, offsite accumulations of sediment will be removed at a frequency sufficient to minimize offsite impacts.

2. Waste Disposal

a. All solid waste materials, including disposable materials incidental to the major construction activities, will be collected in containers. The containers will be emptied periodically and hauled to a landfill. Each container must be covered to prevent the blowing of debris from the container. Each contractor is responsible for proper disposal of his own trash.

b. Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary to ensure that they do not discharge from the site. It is the responsibility of each contractor to make sure pollutant discharge is avoided. As an example, special care shall be exercised during equipment fueling and servicing operations. If a spill occurs, it shall be contained and disposed of so that it will not flow from the site or soak in to the soil. In this regard, potentially polluting substances shall be handled in a manner consistent with the impact they represent.

3. Sanitary / Septic

Contractors shall comply with all Federal, State and local sanitary sewer septic system regulations. Temporary portable sanitary facilities shall be provided at the site by each contractor throughout construction activities. They shall be utilized by construction personnel and serviced regularly by a commercial operator. All Expenses associated with providing sanitary facilities are the responsibility of the contractors.

4. Water Source

Water used to establish and maintain grass, to control dust, and for other purposes during the construction phase must originate from a public water supply or private well approved by the Texas State Department of Health. Temporary fire hydrants meters shall be used until such time the potable water is available within the site.

5. Construction Phase "Best Management Practices" (BMPs)

During the construction phase, the Operator/Contractor(s) will also implement the following measures:

a. Equipment fueling, maintenance and cleaning will only be done in protected areas. The areas will be surrounded by a temporary 15" high perimeter Liquid tight Earth Containment Berm with a liner covered by plastic sheeting.

b. Equipment wash down (except for wheel washes) shall take place within an area surrounded by an Earth Containment Berm. Use of detergents is prohibited.

c. Chemicals, paints, solvents, fertilizers and other toxic or hazardous materials shall be stored in waterproof containers. Except during application, the containers shall be kept in trucks or within storage facilities. Run-off containing such materials shall be collected, removed from the site and disposed of at an approved solid waste or chemical disposal facility.

6. Hazardous Material Storage

Chemicals, fertilizers and other toxic or hazardous materials should be stored in their original containers (if original container is not resealable, store the products in clearly labeled, waterproof containers). Except during application, the containers should be kept in trucks or in bermed areas within covered storage facilities. Storm water runoff containing such materials shall be collected, removed from the site and disposed of in accordance with the federal, state and local regulations.
As may be required by federal, state or local regulations, the Contractor should have a Hazardous Materials Management Plan and/or Hazardous Materials Spill and Prevention Program in place. A foreman or supervisor should be designated in writing to oversee, enforce and instruct construction workers on proper hazardous materials storage and handling procedures. Should hazardous materials be stored on site this erosion and sediment control plan shall be annotated to indicate where the materials will be stored. These additional controls are necessary to minimize or prevent pollutants, such as chemicals, oil and grease, metals, floatables, and sanitary wastes from entering storm water runoff.

7. Spill Prevention and Response

Consistent with the general permit requirements, all potential pollutants other than sediment will be handled and disposed of in a manner that does not cause contamination of storm water. Non-sediment pollutants that may be present during construction activities include:

- Petroleum products including fuel, lubricants, hydraulic fluids, and form oils.
- Polymer used for soil stabilization
- Water treatment chemicals (coagulant, acid, sodium bicarbonate)
- Concrete
- Paints
- Fertilizers

These materials, and other materials used during construction with the potential to impact storm water, will be stored, managed, used, and disposed of in a manner that minimizes the potential for releases to the environment and especially into storm water.

All Spill Response Contact Numbers and Spill Response Forms are included in Appendix B

8. Concrete Saw Cutting and Truck Washout

Concrete waste at construction sites comes in two forms: 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

Slurry Collection & Disposal

~During saw cutting operations, the slurry and cuttings shall be continuously vacuumed to control the flow of water from the operations site.
~The slurry and cuttings shall not be allowed to drain to the storm drain system, swale, stream or other water body.
~The slurry and cuttings shall not be allowed to remain on the pavement to dry out.
~Develop pre-determined, safe slurry disposal areas.
~Collected slurry and cuttings shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.
~Never dump waste illicitly or without property owner's knowledge and consent.
~Slurry may be disposed of in facilities designated for washdown of concrete trucks.

IV. STATE AND LOCAL PROGRAMS

1. To the best Knowledge of all parties involved with the implementation of this SWP3, all measures and considerations specified in this plan meet the requirements of the TCEQ TPDES General Permit TXR150000, the City of Addison and Dallas County.

2. SWP3 must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits approved by state or local official for whom the permittee receives written notice.

V. INSPECTION AND MAINTENANCE

All disturbed areas, as well as all erosion and sediment controls devices, will be inspected every fourteen (14) calendar days and within 24 hours of a ½ inch rain event. Inspections shall be conducted, and a written report prepared by a qualified personnel familiar with the TPDES general permit, this SWPPP and the project. The contractor will provide qualified personnel to conduct the mandatory inspections, keep a current copy of the SWPPP on the project site, post the Project Construction Site Notices (Appendix G), and insert inspection report forms (Appendix E) (and all other documents relating to storm water pollution prevention) in the Plan.

A. Material Storage Inspections

Inspectors must evaluate areas used for storage of materials that are exposed to precipitation. The purpose is to ensure that materials are protected and/or impounded so that pollutants cannot discharge from storage areas. Offsite material storage areas used solely by the subject project (none anticipated) are considered to be part of the project by the TCEQ and must be included in the site inspection report.

B. Soil Stabilization Inspections

Seeded areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with pavement, or have a stand of grass with at least 70% uniform density. The density of 70% or greater must be maintained to be considered as stabilized. The contractor is responsible for watering, fertilizing and reseeding disturbed areas as needed to achieve this goal.

C. Erosion and Sediment Control Inspections

All controls should be inspected at least once every seven (7) calendar days. It is also recommended that "walk through inspections" be conducted prior to storm events. The following is a list of inspection/maintenance practices that will be used for specific controls:

Silt Fencing: Filter fabric will be replaced whenever it has deteriorated to such an extent that it reduces the effectiveness of the fabric. Sediment should be removed when it reaches approximately one-half the height of the fence.

Inlet Protection: Sediment should be removed when it reaches approximately one-half the height of the fence. If a sump is used, Sediment should be removed when the volume of the basin is reduced by 50%.

Rock Berms: Additional stone/rock or woven wire should be added as needed to provide storm water velocity reduction and maintain the stability of the rock berm.

Vegetation: Protect newly seeded areas from excessive runoff and traffic until vegetation is established. Establish a watering and fertilizing schedule.

E**rosion Control Blankets:** Should be inspected regularly for bare spots caused by weather related events. Missing or loose blankets must be replaced or re-anchored. Also check for excess sediment deposited from runoff. Remove sediment and/or replace blanket if necessary.

Concrete Waste: Concrete waste at construction sites comes in two forms: 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition, saw cutting and batching. All these forms have the potential to impact water quality through storm water runoff contact with the waste.

Concrete Washout: All concrete truck washout shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.

Good Housekeeping: Litter, demolition debris, and equipment chemicals exposed to storm water shall be prevented from becoming a pollutant source for storm water discharges by means of screening of outfalls and daily pickup of litter.

Discharge of Standing Water: Discharge of standing water will not occur unless the discharge will not cause an exceedance of Surface Water Quality Limits.

In the event that sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize adverse impacts. An example of this may be the situation where sediment has washed into the street and could be carried into the storm sewers by the next rainfall and/or pose a safety hazard to users of public streets.

Inspections must evaluate areas used for storage of materials that are exposed to precipitation. The purpose is to ensure that materials are protected and/or impounded so that pollutants cannot discharge from the storage area.

Inspection reports shall be completed including scope of the inspection, name(s) and qualifications of personnel making the inspection, the date of the inspection, observed major construction activities, and actions taken as a result of the inspection. The inspection report should state whether the site was in compliance or identify any incidents of non compliance. The report shall be signed in accordance with the TPDES general permit and filed in the SWPPP. A sample Inspection report is included in Appendix E. Inspection report shall be kept in the Owners file, along with the Storm Water Pollution Prevention Plan, for at least for at three years from the date that the site achieves final stabilization.

VI. MODIFICATIONS / REVISIONS TO SWPPP

Based on inspection results, any necessary modification to this SWPPP shall be implemented within seven (7) calendar days of the inspection. A modification is necessary if a control measure or operational procedure does not provide adequate pollutant control. All revisions shall be recorded on the Update Form (Appendix B) within seven calendar days of the inspection.

It is the responsibility of each contractor or subcontractor to maintain effective pollutant discharge controls. Physical site conditions or contractor/subcontractor practices could make it necessary to install more controls than were originally planned. For example, localized concentrations of surface runoff or unusually steep areas could require additional silt barrier, or other structural controls. Assessing the need for, and installing additional controls will be a continuing Owner/contractor responsibility until final stabilization is achieved. Owner and contractors implementing this SWPPP must remain alert to the need to periodically refine and update this SWPPP in order to accomplish the intended goals.

VII. PROCEDURAL REQUIREMENTS

During construction, the owner, its contractors and subcontractors must comply with the following requirements of the TCEQ TPDES Storm Water General Permit:

This SWPPP must be compliance certified for the Project prior to ground disturbance.

The NOI must be completed, signed and postmarked at least 2 days prior to beginning of the Project's on-site work. Each entity meeting either of the two criteria for an operator must submit an NOI to the TCEQ, Storm Water &General Permits Team, MC-228, P. O. Box 13087, Austin, Texas 78711-3087. A copy of the NOI must be provided to the operator of any MS4 receiving the discharge.

If the applicant becomes aware that it failed to submit any relevant facts, or submitted incorrect information in an NOI, the correct information must be provided to the executive director in a Notice of Change (NOC) letter within 14 days after discovery. If relevant information provided in the NOI changes, a NOC must be submitted within 14 days of the change. A copy of the NOC must be provided to the operator of any MS4 receiving the discharge.

A copy of the signed TPDES Construction Site Notice and NOI must be conspicuously posted near the main entrance of the site prior to commencing construction activities, and the Notices must be maintained in that location until completion of the construction activity. The TCEQ issued Permittee number should also be posted once it is received from the TCEQ.

The Owner and Contractors are required to keep a signed copy of this SWPPP and supporting documents on-site. In maintaining plans, all records and supporting documents should be compiled together in an orderly fashion. Federal and State regulations require permittee(s) to keep the SWPPP and all reports and documents for at least three years after the project is complete. This provision ensures that all records are available in the event the documents need to be reviewed.

All contractors/subcontractors involved in any earth disturbing activities, must sign the appropriate certification statement located in Appendix A. At a minimum, this includes the excavation and grading contractors.

The Owner, its contractor and/or subcontractors will conduct inspections of the project as described previously to assure compliance with this SWPPP. Based on inspection results, this SWPPP and BMPs may require modification by the Owner and/or contractor to assure the quality of storm water or the identified non-storm water discharges are leaving the site in compliance with the TCEQ TPDES Storm Water General Permit. All modifications must be implemented within seven calendar days after the inspection.

The Owner must approve modifications specific to construction projects prior to implementation by the contractor and/or subcontractor as required under the TCEQ TPDES Storm Water General Permit. This SWPPP may be amended at any time if it is found to inadequately address conditions of the TCEQ TPDES Storm Water General Permit or any amendments to the permit.

This SWPPP must be updated within seven calendar days from the date of inspection each time there is significant modifications to construction activities, contractors/subcontractors, or pollutant control practices. The Record of SWPPP Revision is located in Appendix B.

This SWPPP along with supporting documentation must be retained for a period of three (3) years after the completion of the Project. It is recommended that each of the operator(s) maintain a copy of the SWPPP for the three-year period

The SWPPP is not submitted to the TCEQ unless the Executive Director specifically requests a copy for review. However, when the Executive Director requests the SWPPP, the permittee(s) should submit it in a timely manner. In addition, when requested, permittee(s) should also submit the SWPPP to state or local sediment and erosion or storm water management agencies or to the municipal operator of the TCEQ TPDES storm water permitted municipal separate storm sewer system to which the site discharges.

VIII. Preparers Certification

Name of Preparer:

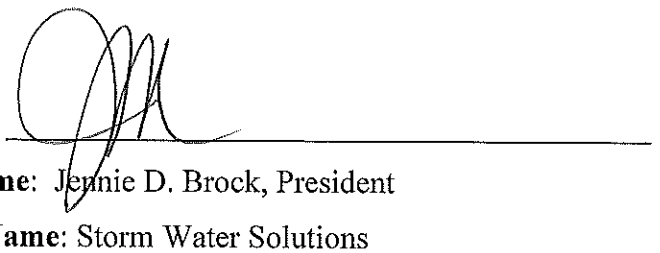
Storm Water Solutions
422 East Interstate 30,
Suite C
Royse City, Texas 75189

972-636-7717 office
972-636-7719 fax

I, Jennie D. Brock, owner of Storm Water Solutions, do hereby certify that the foregoing Storm Water Pollution Prevention Plan was prepared by me, under the Terms and Conditions of the TPDES General Permit No. TXR 150000. This certification does not cover any maintenance or inspection reporting required under the permit.

The information and materials which were not generated by me have been furnished to me by my clients, their employees and / or engineers in the compilation of this Plan and the attached documents. Preparer has prepared the erosion/sediment control plan in accordance with guidelines set forth by local and state authorities.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

Signature: 

Printed Name: Jennie D. Brock, President

Company Name: Storm Water Solutions

Date: 1-8-07

Appendix A

Contractor Certification
Sub Contractor Certifications

Storm Water Pollution Prevention Plan
Owner / Contractor Certification Form

Site Description:
As identified on the Storm Water Pollution Prevention Plan (SWPPP).

Project Name: Addison Road Paving and Drainage – Phase I

Project Location: From Belt Line Road to Arapaho Road, Addison, Texas

A duly authorized representative of the Owner and a duly authorized representative of the Contractor must be identified and sign the following certification statement. ***(Separate documents may be signed if desired).***

Persons signing this certification must do so in compliance with the signatory requirements of the permit as found at CFR 122.22 as follows:

For a corporation: by a responsible corporate office. For the purpose of this section, a responsible corporate officer means: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision making functions for the corporation; or the manger of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

For the municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

OWNER: TOWN OF ADDISON

By: [signature] Title: ASST. PUBLIC WORKS DIRECTOR Date: 1/30/07

Printed Name: AARON RUSSELL

Contractor: JRJ PAVING, LP

By: [signature] Title: Business Manager Date: 1/11/07

Printed Name: Marty Murphy

This certification is to be kept on file with the SWPPP for this project. Do not send to the TCEQ.

SUBCONTRACTOR CERTIFICATION
STORM WATER POLLUTION PREVENTION PLAN

Subcontractor Certification for:

Project Name: Addison Road Paving and Drainage – Phase I

Project Location: From Belt Line Road to Arapaho Road, Addison, Texas

Each contractor and subcontractor engaged in activities that disturb surface soils must be identified and must sign the following certification statement.

Name of Subcontractor: _____

Address: _____

_____

Telephone No: _____

Type of Construction Services to be provided: _____

_____

_____

_____

Certification Statement: *"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification".*

This certification is hereby signed in reference to the above named construction:

Name: _____ Title: _____

Signature: _____ Date: _____

Appendix B

Update Form
Record of Major Grading Activities
Record Construction Activities
Record of Stabilization Measures
Spill Prevention, Response Procedures, Contact Numbers and
Spill Response Forms

SW.P.P.P UPDATE FORM

DATE:______________________ WAS EROSION MAP UPDATED:____Y / N____

REASON FOR UPDATE:____

____

____

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personal properly gathered and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

NAME:______________________________ TITLE:______________________________

DATE:______________________ WAS EROSION MAP UPDATED:____Y / N____

REASON FOR UPDATE:____

____

____

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personal properly gathered and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

NAME:______________________________ TITLE:______________________________

DATE:______________________ WAS EROSION MAP UPDATED:____Y / N____

REASON FOR UPDATE:____

____

____

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personal properly gathered and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

NAME:______________________________ TITLE:______________________________

DATE:______________________ WAS EROSION MAP UPDATED:____Y / N____

REASON FOR UPDATE:____

____

____

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personal properly gathered and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

NAME:______________________________ TITLE:______________________________

RECORD OF:

MAJOR GRADING ACTIVITIES

Note: Table is used to log dates when <u>any</u> grading activities take place on the project.

Date(s) When Major Grading Activities Occur (mm-dd-yy)	Describe Major Grading Activity and Location

RECORD OF:

TEMPORARY / PERMANENT CEASING OF CONSTRUCTION

Note: Table is used to log dates when construction activity temporarily or permanently ceases at the site.

Project Activity Area	Date Activities Ceased	Temporary or Permanent	Date Activities Resumed

RECORD OF:

STABILIZATION MEASURES

Note: Table is used to log dates when each area of the project is stabilized.

Date(s) When Stabilization Measures are Initiated (mm-dd-yy)	Describe Stabilization Measures	Area(s) of project

SPILL PREVENTION AND RESPONSE

Consistent with the general permit requirements, all potential pollutants other than sediment will be handled and disposed of in a manner that does not cause contamination of storm water. Non-sediment pollutants that may be present during construction activities include:

- Petroleum products including fuel, lubricants, hydraulic fluids, and form oils
- Polymer used for soil stabilization
- Water treatment chemicals (coagulant, acid, sodium bicarbonate)
- Concrete
- Paints
- Fertilizers

These materials, and other materials used during construction with the potential to impact storm water, will be stored, managed, used, and disposed of in a manner that minimizes the potential for releases to the environment and especially into storm water.

Emergency contacts for the project are included at the end of this section.

General Materials Handling Practices

The following general practices will be used throughout the project to reduce the potential for spills.

- Potential pollutants will be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practicable, material storage areas should not be located near storm drain inlets and should be equipped with covers, roofs, or secondary containment as needed to prevent storm water from contacting stored materials. Chemicals that are not compatible (such as sodium bicarbonate and hydrochloric acid) shall be stored in segregated areas so that spilled materials cannot combine and react.

- Materials disposal will be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.

- Materials no longer required for construction will be removed from the site as soon as practicable.

- Adequate garbage, construction waste, and sanitary waste handling and disposal facilities will be provided to the extent necessary to keep the site clear of obstruction and BMPs clear and functional.

Specific Materials Handling Practices

- All pollutants, including waste materials and demolition debris, that occur on-site during construction will be handled in a way that does not contaminate storm water.

- All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored on site will be covered and contained and protected from vandalism.

- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, will be conducted under cover during wet weather and on an impervious surface to prevent the release of contaminants onto the ground. Materials spilled during maintenance operations will be cleaned up immediately and properly disposed of.

- Wheel wash water will be settled and discharged on site by infiltration. Wheel wash water will not be discharged to the storm water system or the storm water treatment system.

- Application of agricultural chemicals, including fertilizers and pesticides, will be conducted in a manner and at application rates that will not result in loss of chemical to storm water runoff. Manufacturers' recommendations will be followed for application rates and procedures.

- pH-modifying sources will be managed to prevent contamination of runoff and storm water collected on site. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on site and prevent their release into receiving waters.

If a spill of pollutants threatens storm water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The site superintendent will be notified immediately when a spill, or the threat of a spill, is observed. The superintendent will assess the situation and determine the appropriate response.

- If spills represent an imminent threat of escaping project site and entering the receiving waters, facility personnel will respond immediately to contain the release and notify the superintendent after the situation has been stabilized.

- If oil sheen is observed on surface water (e.g., settling ponds, detention pond, and swales), absorbent pads and/or booms will be applied to contain and remove the oil. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

- The site superintendent, or his designee, will be responsible for completing the spill reporting form and for reporting the spill to the appropriate state or local agency (see Forms at the end of this section).

Notification

In the event of a spill, make the appropriate notification(s) consistent with the following procedures:

- Any spill of oil which 1) violates water quality standards, 2) produces a "sheen" on a surface water, or 3) causes a sludge or emulsion must be reported immediately by telephone to the National Response Center Hotline.

- Any oil, hazardous substance, or hazardous waste release which exceeds the reportable quantity *see below for reference* must be reported immediately by telephone to the National Response Center Hotline.

- Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the EPA National Response Center.

Reportable Quantities Quick Reference

Material	Released to	Reportable Quantity
Engine Oil, Fuel Hydraulic and Brake Fluid	Land / Water	25 Gallons Visible Sheen
Battery Acid Antifreeze Gasoline Engine Degreasers	Air / Land / Water	100 lbs
Refrigerant	Air	1 lb

SPILL RESPONSE CONTACT NUMBERS:

EPA NATIONAL RESPONSE CENTER

(800) 424-8802

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

(817) 469-6750

TEXAS NATIONAL RESOURCE CONVERSATION COMMISSION (TNRCC)

(800) 832-8224

Spill Report Form

LOCATION OF SPILL AT PROJECT: _____

Date: _____ Time: _____

Regulatory agencies notified (date, time, person, agency, and how): _____

Material spilled: _____

Quantity spilled: _____

Source: _____

Cause: _____

Extent of injuries (if any): _____

Immediate remedial actions taken at time of spill: _____

Measures taken or planned to prevent recurrence: _____

Was Storm Water Pollution Prevention Plan "SWPPP" Updated: _____

Was Erosion Control Plan updated to show Spill Location: _____

This report prepared by: _____

(Signature) (Date) (Job title)

Appendix C

Delegation Letter

January 8, 2007

"Executive Director"
TCEQ
Storm Water and General Permits Team: MC-148
P.O. Box 13087
Austin, TX 78711-3087

Dear Executive Director,

This letter serves to designate either a person or specifically described position as an authorized person for signing reports, storm water pollution prevention plans, certifications or other information as required. The following person or position is hereby authorized to sign reports, plans or certifications other than an NOI application.

A qualified Storm Water Inspector Employed by: Storm Water Solutions

Project Name: Addison Road Paving and Drainage – Phase I

Project Location: From Belt Line Road to Arapaho Road, Addison, Texas

By signing this authorization, I confirm that I meet the following requirements to make such a designation as set forth in the Texas Administrative Code Title 30 Part 1 Chapter 305 Subchapter C Rule 305.44 and Title 30 Part 1 Chapter 305 Subchapter F Rule 305.128.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

Signature: _____ Date: 1-11-07

Printed Name: Marty Murphy Title: Business Manager

Company Name: JRJ Paving, LP

January 8, 2007

"Executive Director"
TCEQ
Storm Water and General Permits Team: MC-148
P.O. Box 13087
Austin, TX 78711-3087

Dear Executive Director,

This letter serves to designate a Company who will have day-to-day operational controls of those activities at a construction site which are necessary to ensure compliance with the storm water pollution prevention plan that has been developed for this site.

Name: JRJ Paving, LP.

Title: General Contractor / Daily Operational Controls

Project Name: Addison Road Paving and Drainage – Phase I

Project Location: From Belt Line Road to Arapaho Road, Addison, Texas

By signing this authorization, I confirm that I meet the following requirements to make such a designation as set forth in the Texas Administrative Code Title 30 Part 1 Chapter 305 Subchapter C Rule 305.44 and Title 30 Part 1 Chapter 305 Subchapter F Rule 305.128.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

Signature: [signature] Date: 1/30/07

Printed Name: AARON RUSSELL Title: ASST. PW DIRECTOR

Owner Name: Town of Addison

Appendix D

Project Description
Vicinity Map
Erosion and Sediment Control Plan with Drainage Characteristics, Details and Specifications

Project Description

This project consists of: Addison Road Paving and Drainage - Phase I located from BeltLine Road to Arapaho Road, in the City of Addison, Dallas County.

This project consists of; Reconstructing Addison Road with reinforced concrete pavement and drainage structures, to turn the existing 4 lane asphalt roadway to a 5 lane concrete roadway.

Activities include; erosion control installation, preparation of right of way, excavation and embankment for roadway, storm sewer and utility construction, lastly landscaping and final stabilization.

The Contractor is responsible for: Updating the SWP3 Plan and Erosion Map as the project proceeds to show; contractors staging areas including all equipment and material storage areas, any offsite materials, waste, borrow or equipment storage areas and all areas of final stabilization once each section has been completed.

Erosion Control Phasing

Phase 1

A. Install erosion controls (as shown on erosion control map) and mobilize staging area, update SWPPP.
B. Begin clearing and grading site, preparation of R.O.W.
C. Begin excavation for the utilities.

Phase II

A. Keep all erosion control measures in place.
B. Install new storm drain as specified on plans.
C. Place silt fence treatments around all open inlets until inlets have been topped out
D. Stabilize subgrade
E. Pave all areas indicated on plans

Phase III

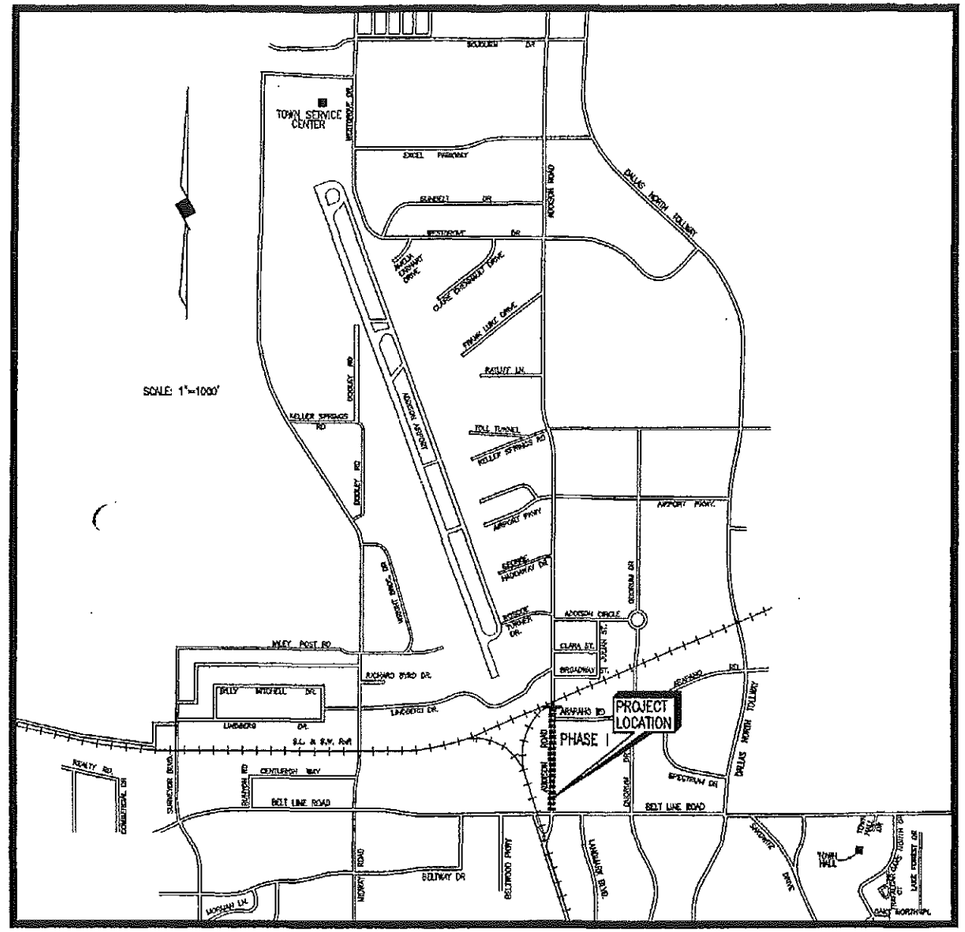
A. Keep all erosion control measures in place.
B. Install inlet protections on new inlets
C. Irrigation and Landscaping
D. Re-vegetate lots, parkways and all disturbed areas.
E. Remove all Equipment and Materials.
F. Once project has reached 70% stabilization, remove all erosion control devices and seed any areas disturbed by their removal.

18b

Addison!®

CONSTRUCTION PLANS FOR

ADDISON ROAD
PAVING AND DRAINAGE - PHASE I
FROM BELT LINE ROAD TO ARAPAHO ROAD



COUNCIL MEMBERS

JOE CHOW, MAYOR
GREGORY S. HIRSCH, MAYOR PRO-TEM
TOM BRAUN, DEPUTY MAYOR PRO-TEM
ROGER S. MELLOW
JIMMY NIEMANN
DENNIS KRAFT
DIANE MALLORY

CITY MANAGER

RON WHITEHEAD

DIRECTOR OF PUBLIC WORKS

NANCY CLINE, P.E.

BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
DATE: 10/31/06

NOVEMBER 2006

STATE OF TEXAS
JOHN W. BIRKHOFF
54137
REGISTERED PROFESSIONAL ENGINEER

PLOT SCALE: 1:1 PLOT STYLE: 11x17.ctb PLOTTED BY: BLOWE ON 10/31/2006

I:\Projects\Addison\2002102\PHASE1\sheet\2002102000.dwg

REVISED: 10/31/06 - BLOWE

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
–	COVER SHEET AND LOCATION MAP
1	SHEET INDEX/GENERAL NOTES
2 & 3	STRIP MAPS
4	TYPICAL PAVING SECTIONS
5 – 8	CONSTRUCTION PLANS & PROFILES
9	PAVEMENT REMOVAL PLANS
10 & 11	COORDINATE LAYOUT PLANS
12	SIGN PLAN
13 – 15	PAVING MARKING PLANS
16 & 17	CONTOUR PLANS
18 – 21	CROSS SECTIONS
22	CROSS SECTIONS AT DRIVEWAYS
23 – 31	DETAIL SHEETS
32	DRAINAGE AREA MAPS
33 – 35	STORM SYSTEM CALCULATIONS
36 – 39	STORM SEWER PLANS
40 – 43	STORM SEWER PROFILES
44	PHASING PLAN
45	STORM WATER POLLUTION PREVENTION PLAN
46 – 51	STORM WATER POLLUTION PREVENTION PLAN DETAIL & NOTES
52 – 56	LANDSCAPE PLANS
57 – 62	IRRIGATION PLANS
63 – 68A	ELECTRICAL PLANS

SUMMARY OF ABBREVIATIONS AND DEFINITIONS

GENERAL TOPOGRAPHY & HORIZONTAL/ VERTICAL CONTROL				TREES & BUSHES	
ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
B.C.	BACK OF CURB	P.I.	POINT OF INTERSECTION	B.D.	BOIS D'ARC TREE
B.-B.	BACK TO BACK	P.L.	PROPERTY LINE	B.T.	BLACK THORN TREE
℄	CENTERLINE	P.P.	POWER POLE	C.B.	CHINABERRY TREE
C.M.A.P.	CORRUGATED METAL ARCH PIPE	P.R.C.	POINT OF REVERSE CURVATURE	CDR.	CEDAR TREE
C.M.P.	CORRUGATED METAL PIPE	P.T.	POINT OF TANGENCY	C.E.	CEDAR ELM TREE
C.I.	CAST IRON	P.V.C.	PLASTIC PIPE	C.M.	CRAPE MYRTLE TREE
C.O.	CLEANOUT	P.V.I.	POINT OF VERTICAL INTERSECTION	C.P.	CHINESE PISTACHIO TREE
CONN.	CONNECTION	R.	RADIUS	C.W.	COTTONWOOD TREE
CULV.	CULVERT	R.C.	REINFORCED CONCRETE	CYP.	CYPRESS TREE
D.I.P.	DUCTILE IRON PIPE	R.C.P.	REINFORCED CONCRETE PIPE	H.B.	HACKBERRY TREE
EL.	ELEVATION	R.C.C.P.	REINF. CONCRETE CYLINDER PIPE	HCK.	HICKORY TREE
ELEC.	BURIED ELECTRICAL POWER LINE	R.O.W.	RIGHT OF WAY	H.T.	HAWTHORN TREE
ENC.	ENCASEMENT	SAN. SEW. OR S.S.	SANITARY SEWER	JAP.	JAPONICA TREE
E.P.	EDGE OF PAVEMENT	S.H.	LAWN SPRINKLER HEAD	LIG.	LIGUSTRUM BUSH
ESMT.	EASEMENT	℄	SURVEY LINE	L.O.	LIVE OAK TREE
F.-F.	FACE TO FACE	S.S.	SANITARY SEWER	LOC.	LOCUST TREE
F.H.	FIRE HYDRANT	S.S.M.H.	SANITARY SEWER MANHOLE	MAG.	MAGNOLIA TREE
F.M.	SANITARY SEWER FORCE MAIN	ST. SEW.	STORM SEWER	MAP.	MAPLE TREE
F.L.	FLOW LINE	S.V.B.	LAWN SPRINKLER VALVE BOX	MSQ.	MESQUITE TREE
G.L.M.	GAS LINE MARKER	T.B.	TELEPHONE CABLE BOX	MIM.	MIMOSA TREE
G.M.	GAS METER	T.C.	TOP OF CURB	MUL.	MULBERRY TREE
G.V.	GAS VALVE	TEL.	BURIED TELEPHONE CABLE	NAN.	NANDINA BUSH
GUT.	GUTTER	T.M.H.	TELEPHONE CABLE MANHOLE	PEC.	PECAN TREE
HDWL.	HEADWALL	T.S.B.	TRAFFIC SIGNAL BOX	PER.	PERSIMMON TREE
I.P.F. OR I.R.F.	IRON PIN (ROD) FOUND	TO F.	TO FACE (OF CURB)	PHOT.	RED TIPPED PHOTINIA BUSH
L.L.	LANDSCAPING LIGHT	TRANS.	ELECTRICAL TRANSFORMER	PIST.	CHINESE PISTACHIO TREE
L.P.	LIGHT POLE	T.V.	BURIED TELEVISION CABLE	R.B.	REDBUD TREE
L.S.	SANITARY SEWAGE LIFT STATION	T.V.B.	CABLE TELEVISION BOX	R.O.	RED OAK TREE
L.S.T.	LANDSCAPING TIMBERS	U.G.C.M.	UNDERGROUND CABLE MARKER	S.G.	SWEET GUM TREE
M.B.	MAILBOX	U.P.M.	UNDERGROUND PIPELINE MARKER	SYC.	SYCAMORE TREE
M.B.G.F.	METAL BEAM GUARD FENCE	V.C.	VERTICAL CURVE	WIL.	WILLOW TREE
M.H.	MANHOLE	W. OR W.L.	WATER LINE		
P.C.	POINT OF CURVATURE	W.M.	WATER METER		
		W.V.	WATER VALVE		

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, AS OUTLINED IN N.C.T.C.O.G. AND TOWN OF ADDISON SPECIFICATIONS.

2. PROPOSED MAIN LANES – ALL PROPOSED 10–INCH CONCRETE REINFORCEMENT SHALL BE #4 BARS DEFORMED ON 18" CENTER EACH WAY. REINFORCED CONCRETE PAVEMENT SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I. MINIMUM 6.5 SACK MIX, MAXIMUM W/C 5.5 N.C.T.C.O.G. AGGREGATE 2–3 (ITEM 2.1.1.(C)(4)) COURSE. MAXIMUM SLUMP SLIP FORM 2 INCHES, SLUMP HAND POURED 4 INCHES.

3. ALL CONNECTIONS OF PROPOSED CONCRETE PAVEMENT TO EXISTING PAVEMENT SHALL INCLUDE A LONGITUDINAL BUTT JOINT WITH #5 OR #6 BAR DOWELS AS THE LOAD TRANSFER DEVICE – SEE DETAIL THIS SET OF PLANS.

4. REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATION OF ALL KNOWN UNDERGROUND UTILITIES AND SERVICE LINES. HOWEVER, THE OWNER ASSUMES NO RESPONSIBILITY FOR FAILURE TO SHOW ANY OR ALL EXISTING SUBSURFACE UTILITIES OR UTILITY LINES, OR TO SHOW THEM IN THEIR EXACT LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES, SERVICE LINES OR THE LIKE, WHICH ARE CROSSED OR EXPOSED BY THE CONSTRUCTION OPERATION.

5. THE CONTRACTOR SHALL FIELD VERIFY DEPTH AND HORIZONTAL ALIGNMENT OF ALL EXISTING UTILITIES (GAS LINES, WATER LINES, COMMUNICATION LINES AND SERVICE LINES) PRIOR TO CONSTRUCTION. CONFLICTS WITH PROPOSED IMPROVEMENTS SHALL BE PROVIDED IN WRITING TO THE TOWN OF ADDISON.

6. THE CONTRACTOR SHALL PROTECT ALL UNDERGROUND SPRINKLER SYSTEMS. ALL DAMAGE CAUSED BY CONSTRUCTION SHALL BE REPAIRED WITHIN 48 HOURS BY AN IRRIGATOR LICENSED IN THE STATE OF TEXAS. ALL COSTS SHALL BE BORNE BY THE CONTRACTOR. SEE LANDSCAPE PLANS FOR PROPOSED IRRIGATION.

7. UTILITY RELOCATION'S AND ADJUSTMENTS – WATER METER AND WATER METER BOXES TO BE RELOCATED OR ADJUSTED SHALL BE REPLACED WITH NEW METER BOXES AND SET AT THE FINISHED GRADE ELEVATION AND WATER SERVICES RECONNECTED. ALL WATER METERS AND METER BOXES IN PROPOSED PAVEMENT AREA SHALL BE RELOCATED IN ADJACENT PARKWAY OR A NON PAVEMENT AREA, PREFERABLY BETWEEN PROPOSED BACK OF CURB AND PROPOSED SIDEWALK. EXISTING METER BOXES REMOVED SHALL BE THE PROPERTY OF THE TOWN. EXISTING WATER VALVE BOXES WITH COVERS SHALL BE REMOVED AND RESET AT THE FINISHED GRADE ELEVATION. ALL EXISTING VALVE STACKS WITH IN THE LIMITS OF THIS PROJECT SHALL BE PROVIDED WITH DEBRIS CAPS. EXISTING STORM SEWER OR SANITARY SEWER MANHOLE FRAME AND COVER TO BE ADJUSTED TO MATCH FINISHED GRADE SHALL USE PRE CAST CONCRETE GRADE RINGS AND NON SHRINK GROUT. ANY OF THESE ITEMS THAT ARE DAMAGED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED WITH ITEMS OF EQUAL OR SUPERIOR QUALITY AT THE SOLE EXPENSE OF THE CONTRACTOR. ALL WATER SERVICE LINES SHALL BE REPLACED BETWEEN WATER MAIN AND WATER METER. ALL SANITARY SEWER SERVICE LINES SHALL BE REPLACED BETWEEN SEWER MAIN AND CLEANOUT WITH NEW 4 INCH SDR 35 PVC PIPE OR MATCH PIPE SIZE IF LARGER THAN 4 INCHES.

8. THERE SHALL BE AT LEAST 6–INCHES CLEAR DISTANCE FROM THE TOP OF THE ADJUSTED METER BOXES AND THE THE WATER METER. CONTRACTOR SHALL NOTIFY THE TOWN AND ALL OWNERS WITH METERS TO BE ADJUSTED 48 HOURS IN ADVANCE OF ANY PLANNED CONSTRUCTION. SERVICE SHALL NOT BE DISRUPTED FOR MORE THAN 4 HOURS WITHOUT THE PERMISSION FROM THE CITY ENGINEER. CONTRACTOR SHALL TAKE MEASURES NECESSARY TO RESTORE WATER SERVICE WITHIN THE 4–HOURS.

9. THE CONTRACTOR SHALL GIVE THE TOWN, BUSINESSES AND RESIDENTS AT LEAST 72 HOURS PRIOR NOTICE TO BEGINNING OF CONSTRUCTION AND AT LEAST 48 HOURS FOR ANY ANTICIPATED WATER OR SEWER SERVICE DISRUPTION.

10. CONCRETE MIX DESIGN SHALL BE SUBMITTED FOR REVIEW A MINIMUM OF 14 DAYS PRIOR TO THE POUR.

11. NO SEPARATE PAY ITEM FOR SUB GRADE PREPARATION UNDER DRIVE OR PARKING AREAS AND ALL COST SHALL BE INCLUDED IN THE APPROPRIATE ITEMS OF THE BID SCHEDULE.

12. ALL PAVEMENT REMOVAL AND REPLACEMENT SHALL BE FULL DEPTH SAW CUT ALONG NEAT LINES AS SHOWN IN THE PLANS. PROPOSED CONCRETE PAVEMENT SHALL BE CONSTRUCTED WITH LONGITUDINAL CONSTRUCTION JOINTS AT ALL CONNECTIONS TO EXISTING CONCRETE PAVEMENT. DAMAGED OR SPALDED EDGES WILL BE RECUT FULL LENGTH.

13. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL EXISTING CONCRETE AND H.M.A.C. PAVEMENT AS REQUIRED FOR CONSTRUCTION OF DRIVES AND PARKING AREAS. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK, ALL COSTS SHALL BE INCLUDED IN THE APPROPRIATE ITEMS IN THE BID SCHEDULE.

14. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY THE CONSTRUCTION TO THE ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE BUT NOT LIMITED TO TRENCH BACK FILL, SIDE SLOPES, FENCES, IRRIGATION SYSTEMS, DRIVEWAYS, PRIVATE YARDS, SIGNS AND ROADWAYS.

15. THE CONTRACTOR SHALL PROTECT ALL TREES, STRUCTURES, SIGNS, MAILBOXES AND OTHER ITEMS THAT ARE NEAR AND/OR ADJACENT TO AREA OF CONSTRUCTION. PRIVATE SIGNS AND MAILBOXES TO BE REMOVED SHALL BE REPLACED OR RELOCATED WITH DIRECTION AND COORDINATION OF THE OWNER AND THE TOWN AND BE WITHIN THE GUIDE LINES OF THE TOWN ORDINANCES. ALL OTHER SIGNS REMOVED DURING CONSTRUCTION SHALL BE TEMPORARY MOUNTED AND PLACED AT PROPER LOCATIONS TO DIRECT TRAFFIC FLOW IF APPLIES.

16. THE CONTRACTOR SHALL MAINTAIN TWO WAY TRAFFIC DURING ROADWAY CONSTRUCTION AND MAINTAIN ACCESS TO ALL BUSINESSES BY USING EXISTING, PROPOSED OR TEMPORARY H.M.A.C. PAVEMENT. THE CONTRACTOR SHALL POST SIGNS AT DRIVEWAYS ALONG THE CONSTRUCTION SITE TO DIRECT TRAFFIC INTO BUSINESSES. THE SIGNS SHALL BE 2 FT. BY 3 FT. WITH BLUE BACKGROUND AND WHITE LETTERS. LETTERS SHALL HAVE THE NAME OF THE BUSINESS AT THE DRIVEWAY TO BE ACCESSED.

17. CONTRACTOR SHALL PROVIDE PROPER BARRICADES, SIGNS, FLAG MEN AND OTHER TRAFFIC CONTROL DEVICES FOR THIS AREA.

18. CONTRACTOR SHALL STAKE SIDEWALK LAYOUT IN THE FIELD FOR TOWN REVIEW. CONTRACTOR SHALL MODIFY ALIGNMENT OF SIDEWALK AS DIRECTED BY THE TOWN. DETERMINATION WILL BE BASED ON AVOIDING DISRUPTION OF TREE ROOT STRUCTURE OF EXISTING LANDSCAPING.

19. CONTRACTOR SHALL ARRANGE AND PAY FOR SWBT, AT&T, ATMOS GAS COMPANY TO ADJUST EXISTING MANHOLES TO FINISHED GRADE OF ROADWAY.

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.

DATE: 10/31/06

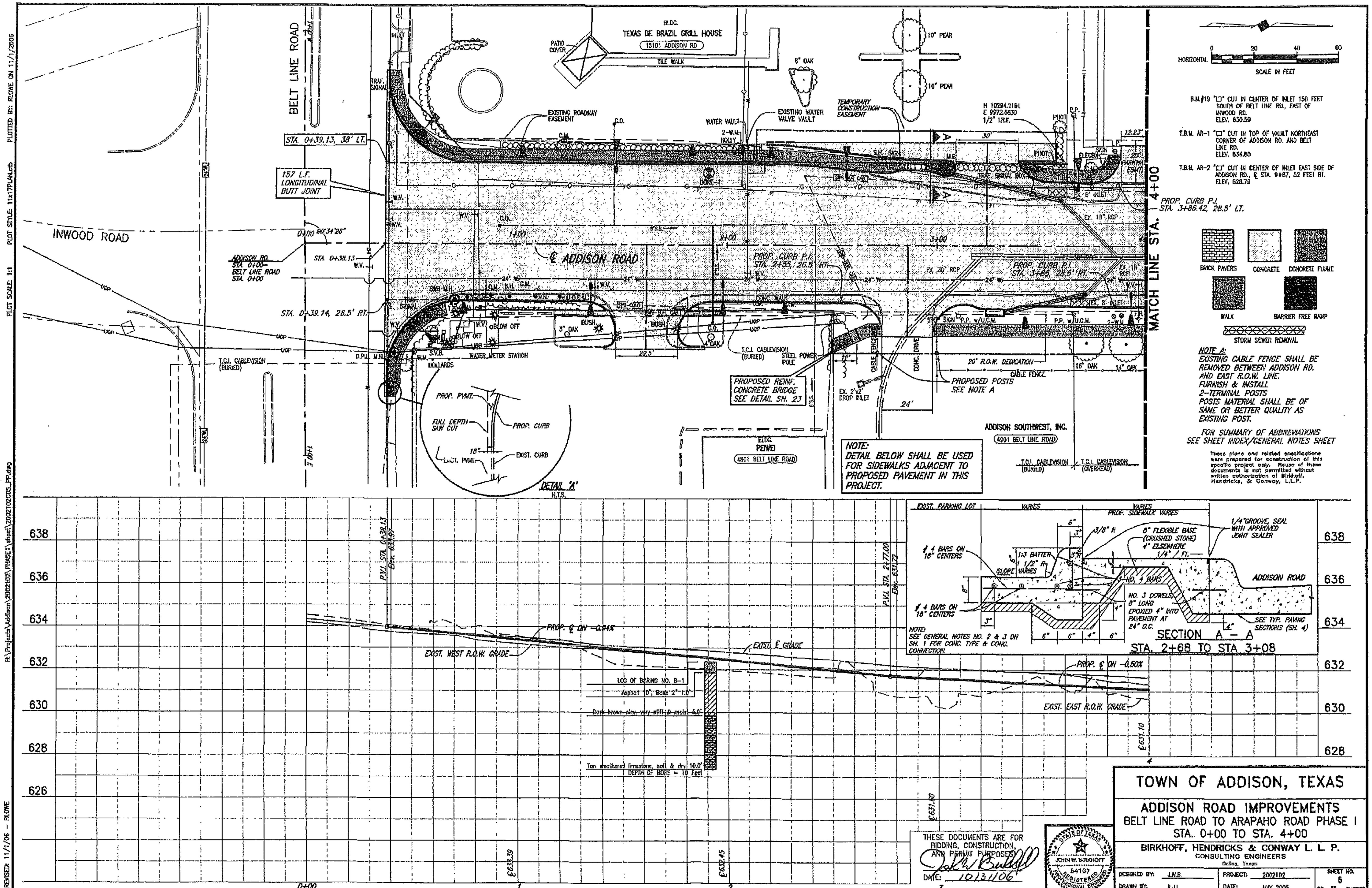
STATE OF TEXAS
JOHN W. BIRKHOFF
64137
REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

SHEET INDEX/GENERAL NOTES
PHASE I

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002-102	SHEET NO. 1
DRAWN BY: R.J.L.	DATE: SEPTEMBER 2006	OF 68 SHEETS


BELT LINE ROAD
INWOOD ROAD
℄ ADDISON ROAD
TEXAS DE BRAZIL GRILL HOUSE
15101 ADDISON RD
STA. 0+39.13, 38' LT.
157 L.F. LONGITUDINAL BUTT JOINT
ADDISON RD. STA. 0+00= BELT LINE ROAD STA. 0+00
STA. 0+38.13
STA. 0+39.14, 26.5' RT.
EXISTING ROADWAY EASEMENT
EXISTING WATER VALVE VAULT
TEMPORARY CONSTRUCTION EASEMENT
PROP. CURB P.I. STA. 2+85, 26.5' RT.
PROP. CURB P.I. STA. 3+85, 28.5' RT.
PROP. CURB P.I. STA. 3+86.42, 28.5' LT.
MATCH LINE STA. 4+00
PROPOSED REINF. CONCRETE BRIDGE SEE DETAIL SH. 23
PROPOSED POSTS SEE NOTE A
20' R.O.W. DEDICATION
CABLE FENCE
ADDISON SOUTHWEST, INC.
4901 BELT LINE ROAD
PENWEI
4801 BELT LINE ROAD
T.C.I. CABLEVISION (BURIED)
T.C.I. CABLEVISION (OVERHEAD)
NOTE: DETAIL BELOW SHALL BE USED FOR SIDEWALKS ADJACENT TO PROPOSED PAVEMENT IN THIS PROJECT.
PROP. PVMT.
FULL DEPTH SAW CUT
PROP. CURB
EXIST. PVMT.
EXIST. CURB
DETAIL "A" N.T.S.
HORIZONTAL 0 20 40 60 SCALE IN FEET
B.M.#19 "□" CUT IN CENTER OF INLET 150 FEET SOUTH OF BELT LINE RD., EAST OF INWOOD RD. ELEV. 630.59
T.B.M. AR-1 "□" CUT IN TOP OF VAULT NORTHEAST CORNER OF ADDISON RD. AND BELT LINE RD. ELEV. 634.80
T.B.M. AR-2 "□" CUT IN CENTER OF INLET EAST SIDE OF ADDISON RD., ℄ STA. 9+87, 52 FEET RT. ELEV. 628.79
BRICK PAVERS
CONCRETE
CONCRETE FLUME
WALK
BARRIER FREE RAMP
STORM SEWER REMOVAL
NOTE A: EXISTING CABLE FENCE SHALL BE REMOVED BETWEEN ADDISON RD. AND EAST R.O.W. LINE. FURNISH & INSTALL 2-TERMINAL POSTS. POSTS MATERIAL SHALL BE OF SAME OR BETTER QUALITY AS EXISTING POST.
FOR SUMMARY OF ABBREVIATIONS SEE SHEET INDEX/GENERAL NOTES SHEET
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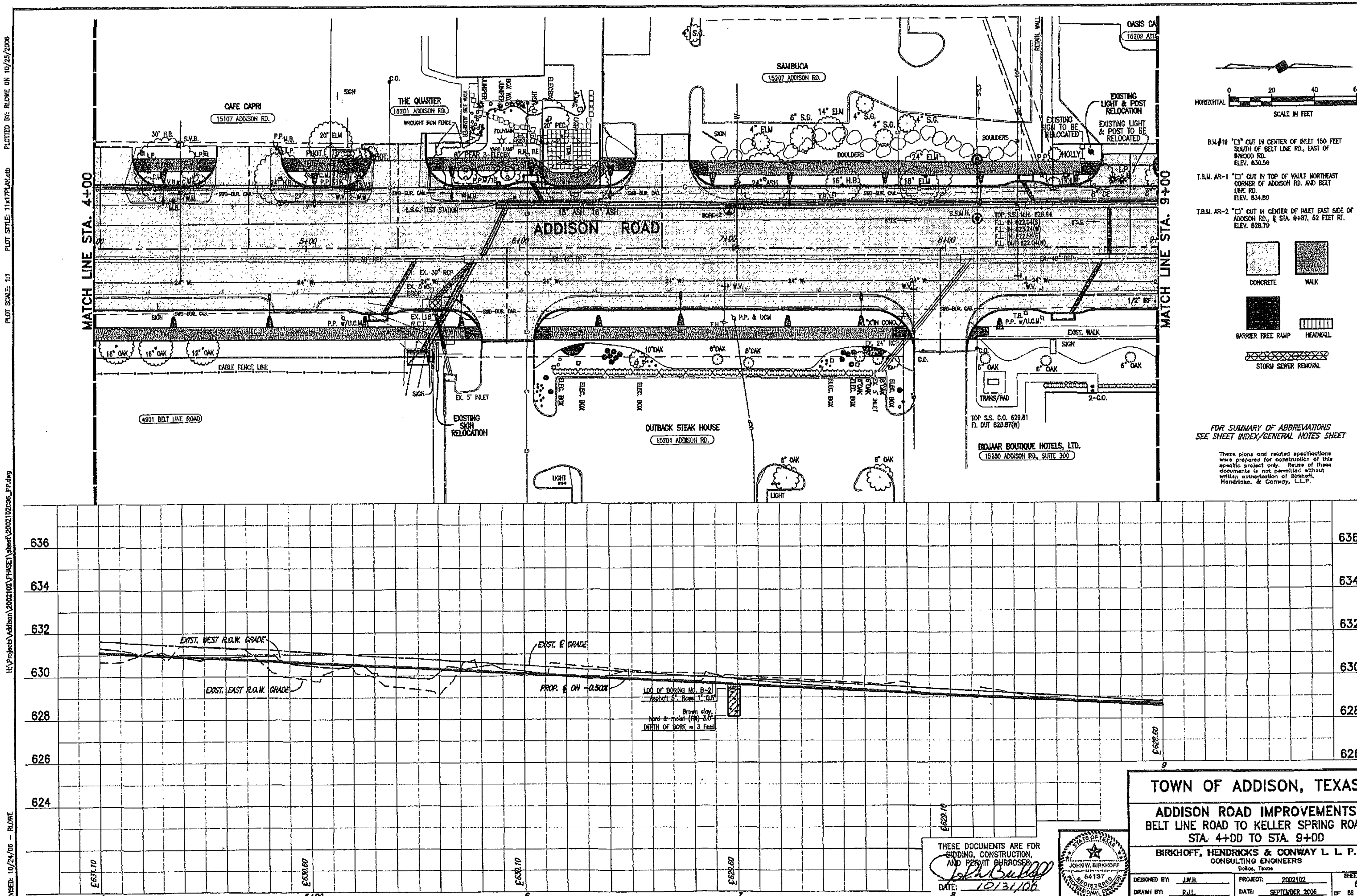
SECTION A – A
STA. 2+68 TO STA 3+08
ADDISON ROAD
SEE TYP. PAVING SECTIONS (SH. 4)
PROP. ℄ ON -0.34%
PROP. ℄ ON -0.50%
EXIST. WEST R.O.W. GRADE
EXIST. ℄ GRADE
EXIST. EAST R.O.W. GRADE
LOG OF BORING NO. B-1
DEPTH OF BORE = 10 feet
638
636
634
632
630
628
626
0+00
1
2
3
4
TOWN OF ADDISON, TEXAS
ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STA. 0+00 TO STA. 4+00
BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
DATE: 10/31/06
JOHN W. BIRKHOFF
54137
DESIGNED BY: J.W.B.
DRAWN BY: R.J.L.
PROJECT: 2002102
DATE: MAY 2006
SHEET NO. 5
OF 68 SHEETS
PLOTTED BY: RLOWE ON 11/1/2006
PLOT SCALE: 1:1
REVISED: 11/1/06 – RLOWE


MATCH LINE STA. 4+00
MATCH LINE STA. 9+00
ADDISON ROAD
CAFE CAPRI
15107 ADDISON RD.
THE QUARTER
15201 ADDISON RD.
SAMBUCA
15207 ADDISON RD.
OUTBACK STEAK HOUSE
15201 ADDISON RD.
4901 BELT LINE ROAD
BIDJAAR BOUTIQUE HOTELS, LTD.
15280 ADDISON RD., SUITE 300
EXISTING SIGN RELOCATION
EXISTING LIGHT & POST RELOCATION
EXISTING LIGHT & POST TO BE RELOCATED
EXISTING SIGN TO BE RELOCATED
EXIST. WEST R.O.W. GRADE
EXIST. ℄ GRADE
EXIST. EAST R.O.W. GRADE
PROP. ℄ ON -0.50%
SCALE IN FEET
B.M.#19 "□" CUT IN CENTER OF INLET 150 FEET SOUTH OF BELT LINE RD., EAST OF INWOOD RD. ELEV. 630.59
T.B.M. AR-1 "□" CUT IN TOP OF VAULT NORTHEAST CORNER OF ADDISON RD. AND BELT LINE RD. ELEV. 634.80
T.B.M. AR-2 "□" CUT IN CENTER OF INLET EAST SIDE OF ADDISON RD., ℄ STA. 9+87, 52 FEET RT. ELEV. 628.79
CONCRETE
WALK
BARRIER FREE RAMP
HEADWALL
STORM SEWER REMOVAL
FOR SUMMARY OF ABBREVIATIONS SEE SHEET INDEX/GENERAL NOTES SHEET

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DATE: 10/31/06

JOHN W. BIRKHOFF 54137

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS

BELT LINE ROAD TO KELLER SPRING ROAD
STA. 4+00 TO STA. 9+00

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002102	SHEET NO. 6	
DRAWN BY: R.J.L.	DATE: SEPTEMBER 2006	OF 68 SHEETS	

PLOTTED BY: RLOWE ON 10/25/2006 PLOT STYLE: 11x17PLAN.ctb PLOT SCALE: 1:1
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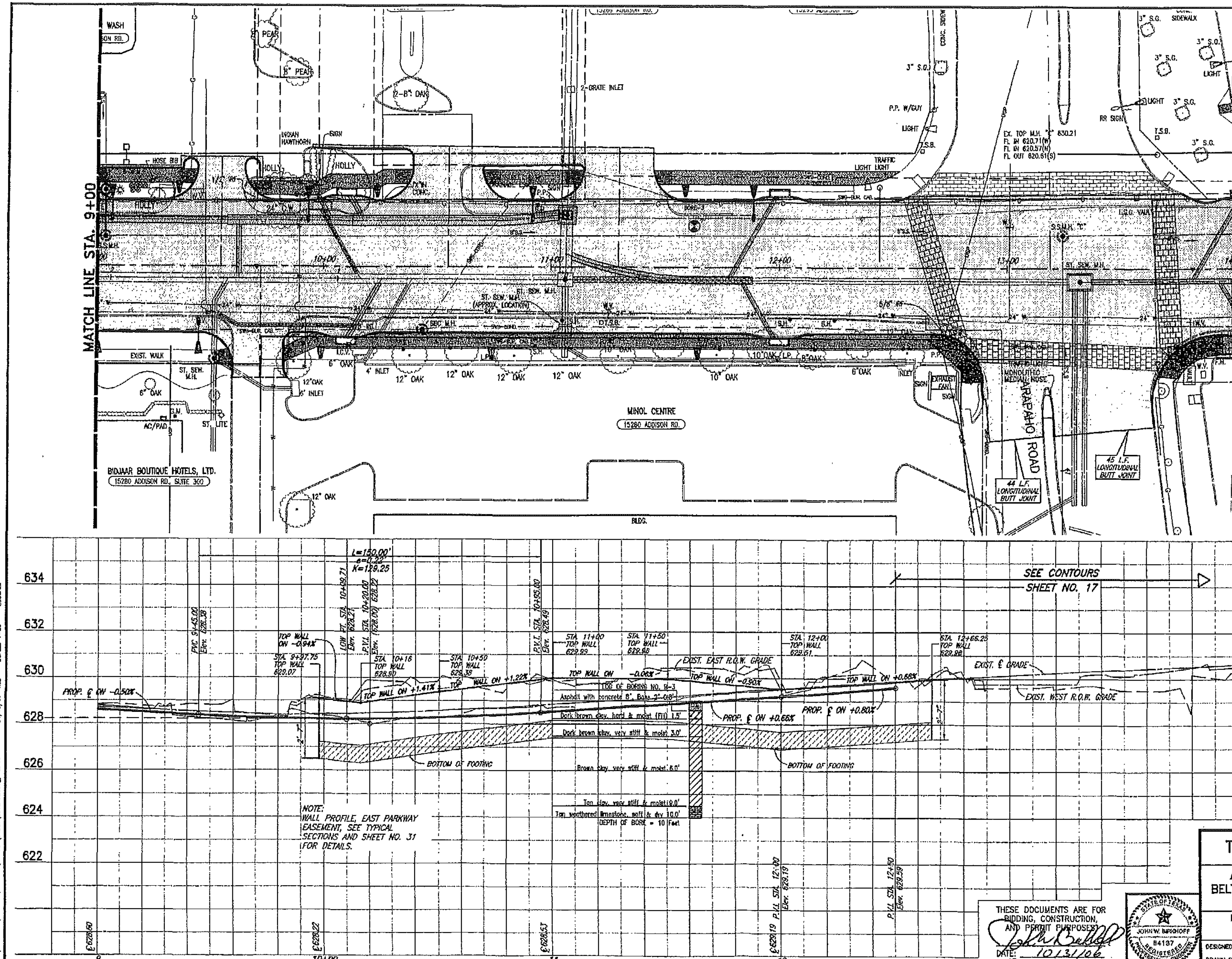
REVISED: 10/24/06 - RLOWE



HORIZONTAL 0 20 40 60
SCALE IN FEET

B.M.#19 "□" CUT IN CENTER OF INLET 150 FEET SOUTH OF BELT LINE RD., EAST OF INWOOD RD. ELEV. 630.59

T.B.M. AR-1 "□" CUT IN TOP OF VAULT NORTHEAST CORNER OF ADDISON RD. AND BELT LINE RD. ELEV. 634.60

T.B.M. AR-2 "□" CUT IN CENTER OF INLET EAST SIDE OF ADDISON RD., ℄ STA. 9+87, 52 FEET RT. ELEV. 628.79

T.B.M. AR-3 "□" CUT AT END OF RETAINING WALL, NORTH OF LINDBERGH DR., WEST SIDE OF ADDISON RD., ℄ STA. 18+76, 45 FEET LT. ELEV. 633.38

CONCRETE — WALK — CROSSWALK PAVERS — BARRIER FREE RAMP — WALL — STORM SEWER REMOVAL

NOTE:
CROSSWALK PAVERS SHALL BE ACME CLAY FIRED BRICK PAVERS (ACME BRICK 231 BLEND). PAVER SHALL MEET ASTM C 1272, TYPE R, APPLICATION PS.

FOR SUMMARY OF ABBREVIATIONS SEE SHEET INDEX/GENERAL NOTES SHEET

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES
DATE: 10/31/06

STATE OF TEXAS — JOHN W. BIRKHOFF — 64137 — REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STA. 9+00 TO STA. 14+00

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002-102	SHEET NO. 7
DRAWN BY: R.J.L.	DATE: SEPTEMBER 2005	OF 63 SHEETS

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PLOTTED BY: RLOWE ON 10/30/2006
PLOT STYLE: 11x17.ctb
PLOT SCALE: 1:1
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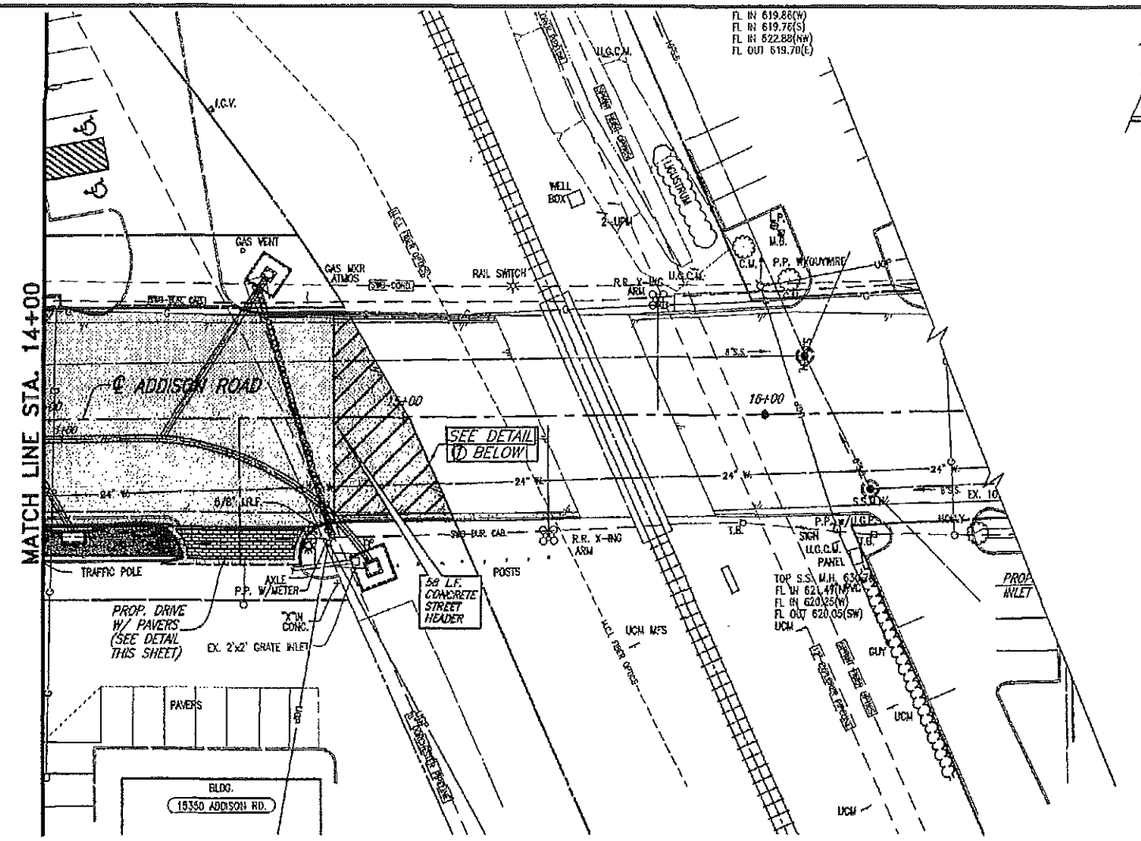
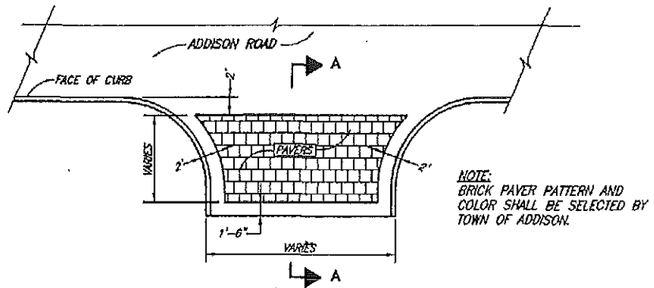
REVISED: 10/30/06 - RLOWE

MATCH LINE STA. 14+00

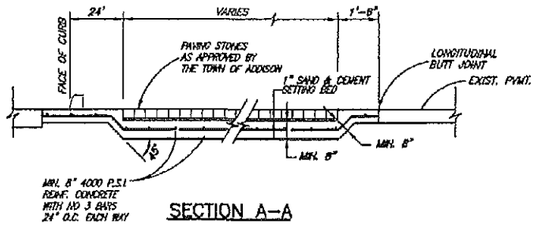




NOTE:
BRICK PAVER PATTERN AND COLOR SHALL BE SELECTED BY TOWN OF ADDISON.

DRIVE W/PAVERS-PLAN

NO SCALE



SECTION A-A

DRIVE W/ PAVERS-SECTION "A"

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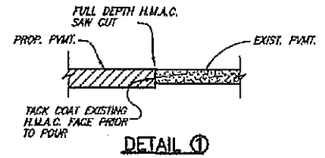

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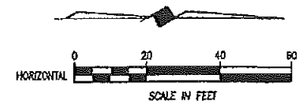


B.M.#19 "□" CUT IN CENTER OF INLET 150 FEET SOUTH OF BELT LINE RD., EAST OF INWOOD RD.
ELEV. 630.69

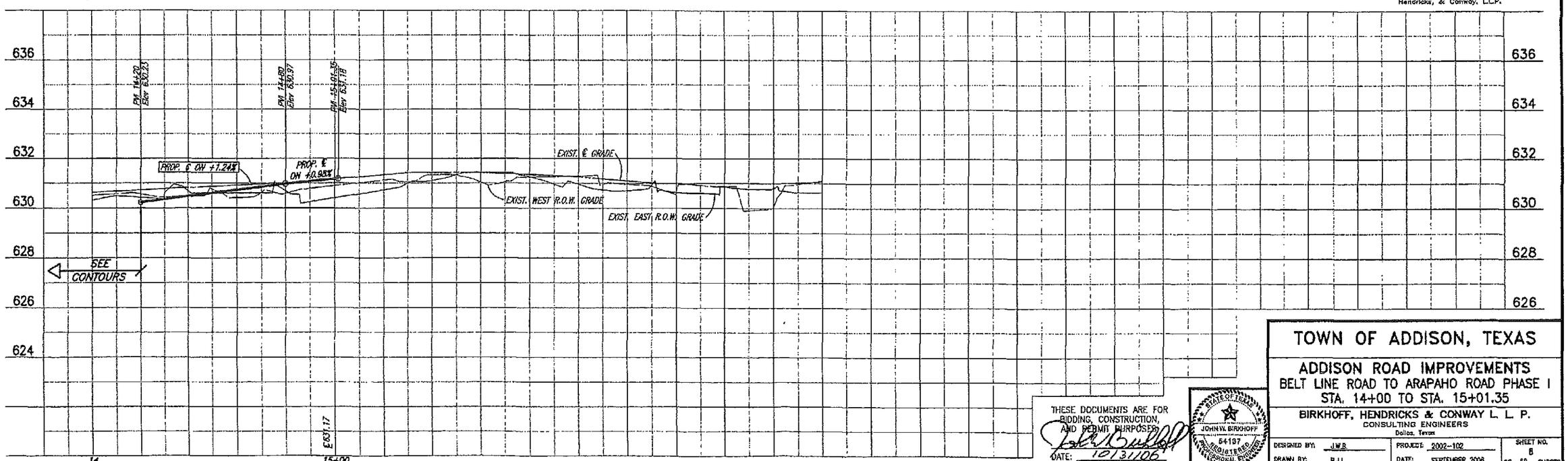
T.B.M. AR-1 "□" CUT IN TOP OF VAULT NORTHEAST CORNER OF ADDISON RD. AND BELT LINE RD.
ELEV. 634.80

T.B.M. AR-2 "□" CUT IN CENTER OF INLET EAST SIDE OF ADDISON RD., ℄ STA. 9+67, 52 FEET RT.
ELEV. 628.79

T.B.M. AR-3 "□" CUT AT END OF RETAINING WALL, NORTH OF LINDBERGH DR., WEST SIDE OF ADDISON RD., ℄ STA. 16+76, 45 FEET LT.
ELEV. 635.38

CONCRETE
ASPHALT
WALK
BARRIER FREE RAMP
STORM SEWER REMOVAL

FOR SUMMARY OF ABBREVIATIONS SEE SHEET INDEX/GENERAL NOTES SHEET



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DATE: 10/31/06

STATE OF TEXAS
JOHN W. BIRKHOFF
54137
REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STA. 14+00 TO STA. 15+01.35

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002-102	SHEET NO. 5
DRAWN BY: R.J.L.	DATE: SEPTEMBER 2006	OF 58 SHEETS

PLOTTED BY: RLOWE ON 9/28/2006

PLOT STYLE: 11x17.ctb

PLOT SCALE: 1:1

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REVISED: 9/28/06 - RLOWE

BLOCKS: 2002102\PHASE1\DRAINAGE\ADDISONDRAIN1.DF

ST. LOUIS & SOUTHWESTERN R.R.

ADDISON ROAD

LINDBERGH DR.

PHASE I
THIS CONTRACT

PHASE II
CONTRACT BY OTHERS

MATCH

LINE 'A'

LINE 'B'

LINE 'C'

LINE 'D'

LINE 'E'

LINE 'F'

ARAPAHO RD.

BROADWAY ST.

JULIAN ST.

CLARA ST.

ADDISON CIRCLE

DALLAS AREA RAPID TRANSIT

QUORUM DR

QUORUM

NORTH

HORIZONTAL 0 100 200 300

SCALE IN FEET

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John W. Birkhoff

DATE: 10/31/06

STATE OF TEXAS
JOHN W. BIRKHOFF
64197
REGISTERED
PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS

ARAPAHO ROAD TO MORRIS STREET PHASE II

DRAINAGE AREA MAP

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 32
DRAWN BY: R.J.L.	DATE: SEPTEMBER 2006	OF 68 SHEETS

PLOT SCALE: 1:1 PLOT STYLE: 11x17.ctb PLOTTED BY: RLOWE ON 9/28/2006

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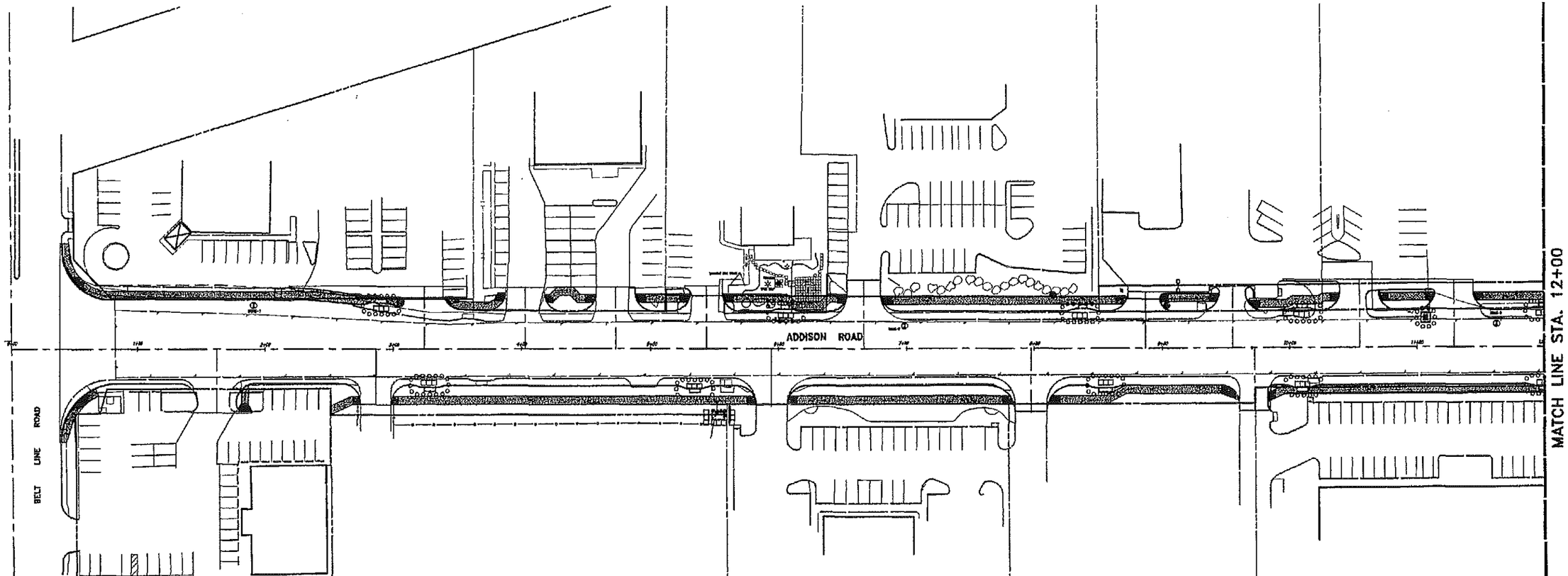
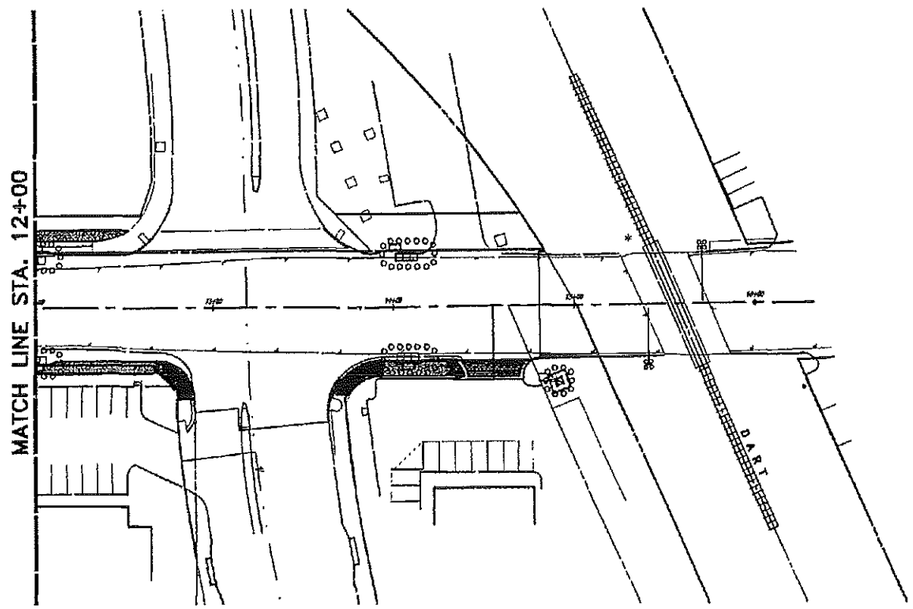
REVISED: 9/27/06 - RLOWE





GENERAL NOTES:

1. EROSION CONTROL DEVICES ALONG ROADWAY SHALL BE 3 FEET OFF THE BACK OF CURB.

2. ALL NON-PAVED AREAS SHALL HAVE GRASS COVER ESTABLISHED BY EITHER HYDROMULCH OR BROADCAST SEED AND FERTILIZER UNLESS SHOWN TO RECEIVE BLOCK SOD.

3. CONTRACTOR SHALL CONSTRUCT ALL DEVICES AS QUICKLY AS IS PRACTICAL FOR PROPOSED STRUCTURES AND SHALL MAINTAIN THROUGHOUT CONSTRUCTION.

4. REFER TO STORM DRAINAGE PLAN FOR ADDITIONAL INFORMATION REGARDING LOCATION OF PROPOSED CHANNELS AND INLETS.

5. REFER TO STORM DRAINAGE PROFILES AND CROSS-SECTIONS FOR ADDITIONAL INFORMATION REGARDING VERTICAL CONTROL FOR PROPOSED CHANNELS AND INLETS.

6. 40 L.F. SEDIMENT CONTROL FENCE ALLOWED IN ESTIMATED QUANTITY FOR EACH INLET EROSION CONTROL DEVICE SHOWN.

7. AFTER CONSTRUCTION OF ROADWAY, BACKFILL BEHIND CURB WITH TOPSOIL AND PLACE SOLID SOD END TO END AND SIDE TO SIDE FOR A DISTANCE OF 4 FEET. ALL OTHER DISTURBED AREAS SHALL BE GRADED, HAND RAKED AND HYDROMULCHED.

LEGEND PHASE I

SILT FENCE

OVERFLOW STRUCTURE

EXCAVATED INLET PROTECTION

INLET PROTECTION

STONE OUTLET SEDIMENT TRAP

HORIZONTAL 0 40 80 120

SCALE IN FEET

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.

DATE: 10/31/06

STATE OF TEXAS JOHN W. BIRKHOFF 64137 REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STORM WATER POLLUTION PREVENTION PLAN

BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 45
DRAWN BY: R.J.L.	DATE: SEPTEMBER 2006	OF 68 SHEETS

SITE DESCRIPTION

PROJECT LIMITS: ADDISON ROAD FROM BELT LINE TO ARAPAHO ROAD 1537 LINEAR FEET

PROJECT DESCRIPTION: THE CONSTRUCTION GENERALLY OF A 5 LANE REINFORCED CONCRETE ROADWAY REPLACING A 4 LANE ASPHALT ROADWAY

MAJOR SOIL DISTURBING ACTIVITIES: SOIL DISTURBING ACTIVITIES WILL INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
PREPARATION OF RIGHT-OF-WAY, EXCAVATION AND EMBANKMENT FOR ROADWAY
STORM SEWER CONSTRUCTION, UTILITY CONSTRUCTION AND ACCESS ENTRANCE CONSTRUCTION FROM EXISTING ROADWAYS.

TOTAL DRAINAGE AREA: 50 ACRES

TOTAL DRAINAGE AREA TO BE DISTURBED: 4 ACRES

WEIGHTED RUNOFF COEFFICIENT: PAVED AREAS 0.90 (1.7 ACRES)
GRASS AREAS 0.50 (2.3 ACRES)

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: THE EXISTING SOILS ARE GENERALLY BROWN CLAY WITH LIMESTONE FRAGMENTS.

NAME OF RECEIVING WATERS: RAILROAD RIGHT-OF-WAY TO RAWHIDE CREEK

WATER QUALITY: WITHIN THE CONSTRUCTION DRAINAGE BASIN ALL KNOWN RUNOFF WILL BE FROM RAINFALL EVENTS. AND WILL CONTAIN ROADWAY POLLUTANTS.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ___ TEMPORARY SEEDING
- X PERMANENT PLANTING, SODDING, OR SEEDING
- ___ MULCH SOD
- ___ SOIL RETENTION BLANKET
- ___ BUFFER ZONES
- ___ PRESERVATION OF NATURAL RESOURCES

OTHER: DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITY HAS CEASED (TEMPORARILY OR FINALLY) SHALL BE EITHER SEEDED OR SODDED WITHIN 14 DAYS UNLESS CONSTRUCTION ACTIVITIES ARE SCHEDULED TO RESUME WITHIN 21 DAYS.

STRUCTURAL PRACTICES:

- X SILT FENCES
- ___ HAY BALES
- X ROCK BERMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- ___ ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- ___ CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ___ SEDIMENT FILTERS
- X STORM INLET SEDIMENT TRAP
- ___ STONE OUTLET STRUCTURES
- X CURBS AND GUTTERS
- X STORM SEWERS
- ___ VELOCITY CONTROL DEVICES

OTHER: ___

NARRATIVE – SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

THE ORDER OF ACTIVITIES WILL BE AS FOLLOWS:

1) PREPARE THE RIGHT-OF-WAY. INSTALL INLET PROTECTION

2) CONSTRUCT UTILITIES, STORM SEWERS AND DRAINAGE CHANNEL

3) BEGIN EXCAVATION OF ROADWAY, STABILIZE AND PLACE CONCRETE PAVEMENT.

4) AFTER ALL WORK HAS BEEN COMPLETED, INCLUDING STABILIZATION OF THE SITE, COMPLETION OF A STAND OF GRASS AND AS APPROVED BY THE OWNER, THE CITY SHALL DIRECT THAT ALL TEMPORARY STRUCTURAL EROSION CONTROL DEVICES BE REMOVED AND THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITH PERMANENT SODDING.

STORM WATER MANAGEMENT: MANAGEMENT OF THE STORM WATER RUNOFF WILL BE PROVIDED BY THE CONSTRUCTION OF TRAPEZOIDAL CHANNELS, INLETS, AND THE EXTENSION OF THE EXISTING STORM SEWER SYSTEM.

EARTHWORK: CUT: 5,200 CUBIC YARDS
FILL: 20 CUBIC YARDS

SIDE SLOPES: SEE ROADWAY CROSS SECTIONS (100 FOOT INTERVALS) GENERALLY FLAT
SEE CHANNEL CROSS SECTIONS 3:1 SIDE SLOPES

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE DONE AT THE EARLIEST DATE POSSIBLE, BUT NO LATER THAN 7 CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM HEAVY EQUIPMENT. THE AREAS ADJACENT TO CREEKS AND DRAINAGE WAYS SHALL HAVE PRIORITY FOLLOWED BY DEVICES PROTECTING STORM SEWER INLETS.

INSPECTION: AN INSPECTION WILL BE PERFORMED BY A CONTRACTOR APPROVED INSPECTOR IN ACCORDANCE WITH THE MOST RECENT NPDES REQUIREMENTS. AN INSPECTION AND MAINTENANCE REPORT WILL BE MADE PER EACH INSPECTION BASED ON THE INSPECTION RESULTS, THE CONTROLS SHALL BE REVISED PER THE INSPECTION REPORT. CITY SHALL REVIEW ALL CONTRACTOR INSPECTIONS. CITY INSPECTOR TO INSPECT EROSION CONTROL DEVICES EVERY 14 CALENDAR DAYS.

WASTE MATERIALS: ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL STATE AND LOCAL CITY SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION, AND THE TRASH WILL BE HAULED TO A LOCAL LANDFILL. NO CONSTRUCTION WASTE MATERIAL WILL BE BURIED ON SITE.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINTS, ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, OR CONCRETE CURING COMPOUNDS AND ADDITIVES. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS, THE CONTRACTOR SPILL COORDINATOR SHOULD BE CONTACTED IMMEDIATELY.

SANITARY WASTE: ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

OFF SITE VEHICLE TRACKING:

- X HAUL ROADS DAMPENED FOR DUST CONTROL
- ___ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- X EXCESS DIRT ON ROAD REMOVED DAILY
- ___ STABILIZED CONSTRUCTION ENTRANCE

OTHER: THE CONTRACTOR SHALL BE RESPONSIBLE FOR AUGMENTING THESE PLANS WITH OTHER MEASURES FOR ANY OTHER TEMPORARY EROSION CONTROL MEASURES OCCASIONED BY THE WORK, SUCH AS FOR HAUL ROADS AND BORROW PIT ACCESS. ALL CONTINGENT EROSION CONTROL PRACTICES SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OR CONSTRUCTION.

REMARKS: DISPOSAL AREAS, STOCKPILES, AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WETLAND, WATER BODY OR STREAM BED. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS. ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICABLE OF TEMPORARY EMBANKMENTS, TEMPORARY BRIDGES, MATTING, FALSE WORK, PILING, DEBRIS OR OTHER OBSTRUCTIONS PLACED DURING CONSTRUCTION OPERATIONS THAT ARE NOT A PART OF THE FINISHED WORK. THERE ARE NO HISTORICAL SITES OR ENDANGERED SPECIES IMPACTED BY THIS PROJECT.

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.

DATE: 10/31/06

STATE OF TEXAS
JOHN W. BIRKHOFF
54137
REGISTERED PROFESSIONAL ENGINEER

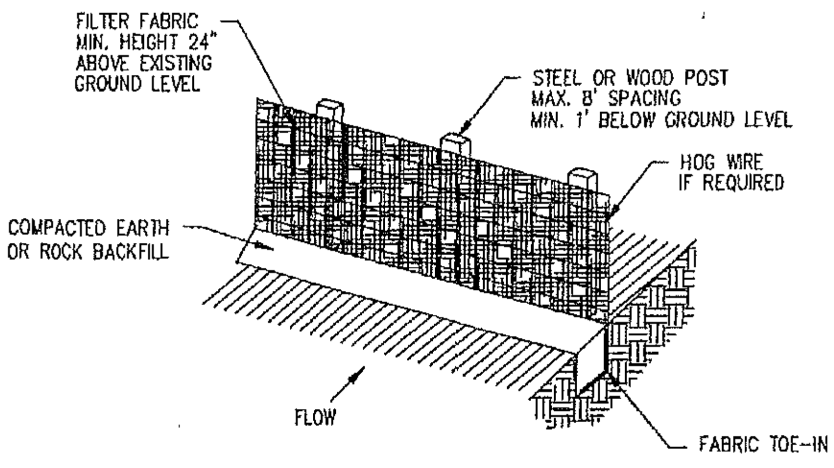
TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STORM WATER POLLUTION PREVENTION PLAN DETAILS

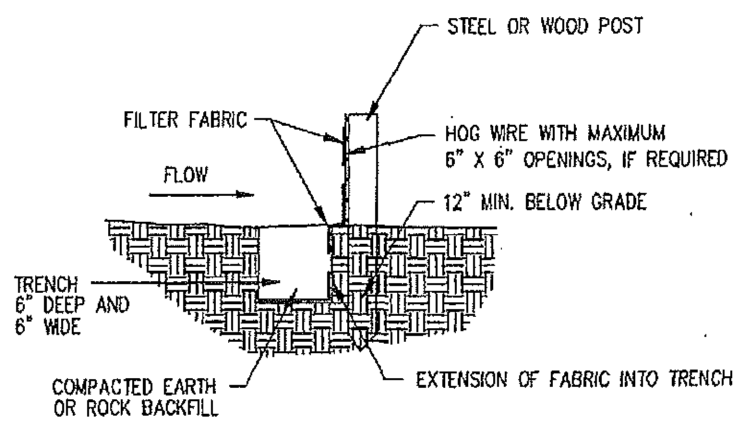
BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 46
DRAWN BY: NH	DATE: SEPTEMBER 2006	OF 68 SHEETS

PLOTTED BY: RLOWE ON 9/28/2005 PLOT STYLE: 11x17.ctb PLOT SCALE: 1:1



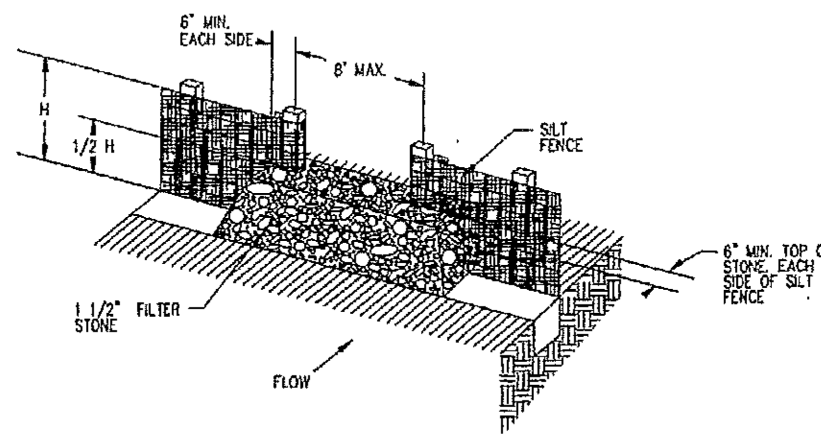
ISOMETRIC VIEW



SECTION VIEW

SILT FENCE

N.T.S.



STONE OVERFLOW STRUCTURE

N.T.S.

5.5 SILT FENCE

1. **DESCRIPTION** - A temporary sediment barrier consisting of filter fabric stretched between and attached to metal or wooden posts, with the bottom of the fabric firmly embedded in the soil. At installations draining larger areas the filter fabric will be attached to a hog wire support that is attached to the fence posts.

2. **PURPOSE** - To slow the flow of sediment laden water from small disturbed areas to allow sedimentation to occur and to filter out larger sediment particles as the water flows through the filter fabric.

3. **APPLICATIONS** - Silt fence is normally used as a perimeter control immediately downstream of small disturbed areas. It can also be used as a flow diversion for very small drainage areas, but does not function as well as a normal diversion channel and is usually much more expensive.

4. **LIMITATIONS** - Do not install silt fences across channels, ditches, streams, pipe outlets, or areas of concentrated water flow. Silt fence locations can limit construction vehicle access so the locations should be well planned to prevent obstructions. Water will pond behind the silt fence resulting in localized flooding during major rain events.

5. **DESIGN CRITERIA** - Place silt fence along perimeter of site where disturbed area sheet runoff must be controlled. Limit the drainage area to 0.25 acres per 100 lineal feet of fence. Provide hog wire support backing whenever the drainage area exceeds 0.10 acres per 100 lineal feet of fence. Maximum post spacing shall not exceed 8 feet. Stone overflow structures or other outlet device shall be installed at all low points along the fence or every 300 feet if there is no apparent low point.

6. **MATERIAL SPECIFICATIONS** -
   A. Filter Fabric - NCTCOG Specification 2.23.4.
   B. Washed Stone - NCTCOG Specification 2.1.8.(e).
   C. Hog Wire - NCTCOG Specification 2.8.2.(b)(1).
   D. Fence Posts - NCTCOG Specification 2.8.2.(b) for wood or steel.

7. **MAINTENANCE REQUIREMENTS** - Silt fence should be inspected weekly and after major rain events to ensure that the device is functioning properly. Remove sediment from behind fence when the depth of sediment has built up to one-third the height of the fence above grade. Inspect the base of the fence to ensure that no gaps have developed and re-trench as necessary. Inspect fence posts to ensure that they are properly supporting the fence. Straighten, reset and add posts if necessary. If filter fabric is ripped, damaged or deteriorated, replace it in accordance with the original specifications and details.

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DATE: 10/31/06

STATE OF TEXAS JOHN W. BIRKHOFF 54137 REGISTERED PROFESSIONAL ENGINEER

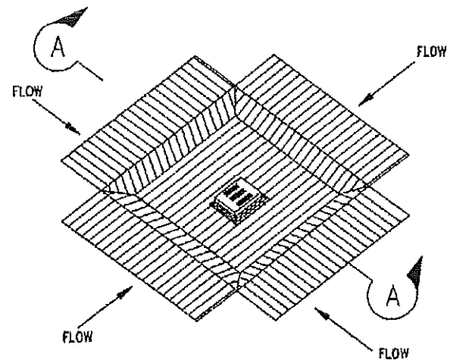
TOWN OF ADDISON, TEXAS

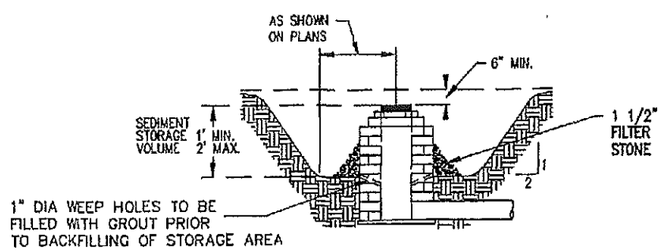
ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STORM WATER POLLUTION PREVENTION PLAN DETAILS

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 47
DRAWN BY: TJH	DATE: SEPTEMBER 2005	OF 68 SHEETS

REVISED: 9/27/06 - RLOWE





SECTION A-A

EXCAVATED DROP INLET PROTECTION
N.T.S.

5.7 EXCAVATED DROP INLET PROTECTION

1. **DESCRIPTION** - An excavated area surrounding a storm drain drop inlet.

2. **PURPOSE** - To remove sediment from storm runoff before it enters into the storm drain system.

3. **APPLICATIONS** - Where storm drain drop inlets are to be used prior to final stabilization of the area draining to the structure. This method is used where the inlet will collect relatively heavy flows and overflow capability is needed. Weep holes or other methods of de-watering the storage area must be provided. This method can also be used in conjunction with other drop inlet protection methods (block and gravel or silt fence barriers) to provide more efficient sediment removal.

4. **LIMITATIONS** - Ponding will occur around the inlet with possible localized flooding as the result. Final stabilization and cleanout may be difficult if the finished area around the drop inlet is to be paved. This method is not applicable to use around existing inlets in a paved area.

5. **DESIGN CRITERIA** -
   - A. Drainage Area - 5.0 acres or less.
   - B. Depth - 1 foot minimum, 2 feet maximum, measured from crest of inlet.
   - C. Volume - 1800 cubic feet per acre of drainage area.
   - D. Side Slopes - 2H:1V or flatter.
   - E. De-watering Time - 48 hours or less. Size and number of holes as needed.

6. **MATERIAL SPECIFICATIONS** -
   - A. Filter Stone - NCTCOG Specification 2.1.8.(e)

7. **MAINTENANCE REQUIREMENTS** - Excavated drop inlet protection should be inspected weekly and after major rain events to ensure that the device is functioning properly. Remove sediment from the excavation when the depth of sediment has built up to one-half of the design depth. If de-watering of storage volume is not occurring, clean or replace filter stone surrounding weep holes. Clean the stone surface the first few times by raking. Repeated sediment build-up will require filter stone replacement.

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
DATE: 10/31/06

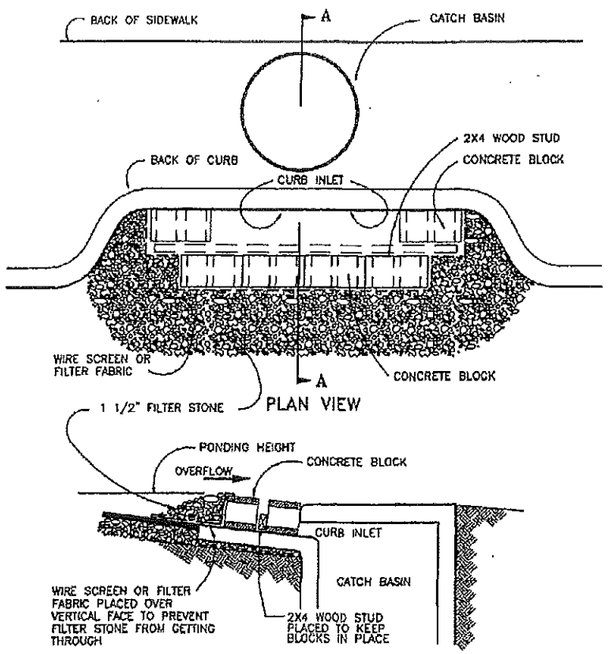
JOHN W. BIRKHOFF 54137 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

TOWN OF ADDISON, TEXAS

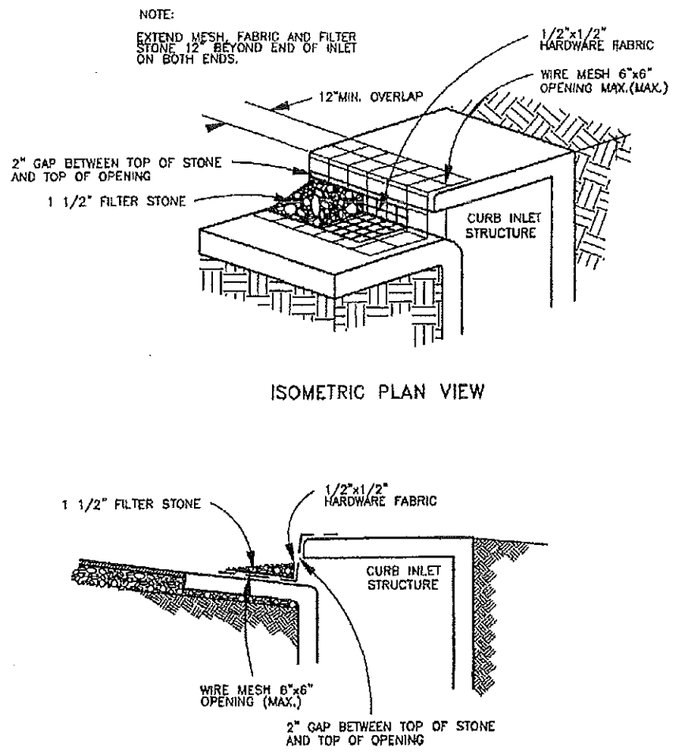
ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE 1
STORM WATER POLLUTION PREVENTION PLAN DETAILS

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 48
DRAWN BY: TJH	DATE: SEPTEMBER 2006	OF 66 SHEETS



BLOCK AND GRAVEL RECESSED
CURB INLET PROTECTION
N.T.S.



TYPE A CURB
INLET PROTECTION
N.T.S.

5.10 CURB INLET PROTECTION

1. **DESCRIPTION** - A temporary sediment control barrier made of filter stone and standard concrete block, welded wire fabric, hardware fabric or 2x4 studs surrounding a storm drain curb inlet.

2. **PURPOSE** - To remove sediment from storm runoff before it enters into the storm drain system.

3. **APPLICATIONS** - Where storm drain curb inlets are to be used prior to final stabilization of the area draining to the structure. This method is used where the inlet will collect relatively heavy flows and overflow capability is needed. This method is also to be used to protect existing curb inlets located in paved areas.

4. **LIMITATIONS** - Ponding will occur around the inlet with possible localized flooding as the result. When used at locations that are open to vehicle traffic, this device will encroach into the traveled way. If the curb inlet is not a recessed type inlet a traffic barricade shall be placed at each end of the inlet protection device.

5. **DESIGN CRITERIA** -
   - A. Drainage Area - 2.0 acres or less.
   - B. Height - 6" (Maximum).

6. **MATERIAL SPECIFICATIONS** -
   - A. Concrete Block - ASTM C 139, Concrete Masonry Unit for Construction.
   - B. Wire Fabric - Standard galvanized hardware fabric with ½" by ½" openings.
   - C. Filter Stone - NCTCOG Specification 2.1.8.(e).
   - D. Wire Mesh - Welded wire fabric conforming to NCTCOG Specification 2.2.7 maximum opening 6"x6".

7. **MAINTENANCE REQUIREMENTS** - Curb inlet protection should be inspected weekly and after major rain events to ensure that the device is functioning properly. Remove sediment from the storage area when the depth of sediment has built up to one-half of the storage depth. If de-watering of the storage volume is not occurring, clean or replace the filter stone. Clean the filter stone surface the first few times by raking. Repeated sediment build-up will require filter stone replacement.

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
John W. Birkhoff
DATE: 10/31/06

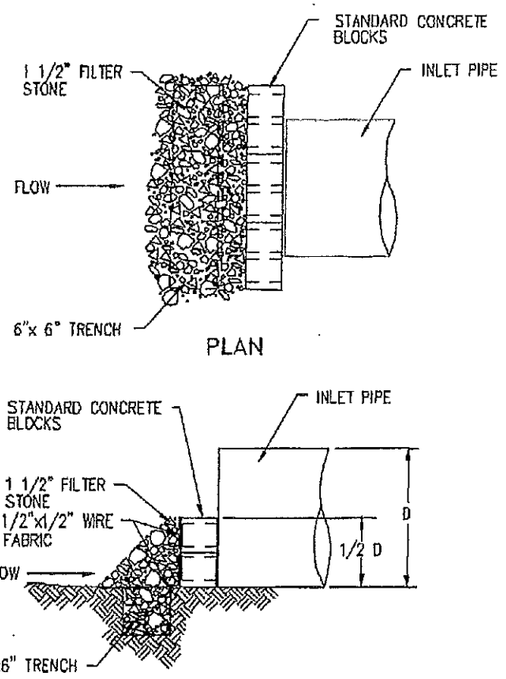
STATE OF TEXAS
JOHN W. BIRKHOFF
64137
REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STORM WATER POLLUTION PREVENTION PLAN DETAILS

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 49
DRAWN BY: T.H.	DATE: SEPTEMBER 2006	OF 88 SHEETS



CINDER BLOCK PIPE INLET PROTECTION
N.T.S.

5.11 PIPE INLET PROTECTION

1. **DESCRIPTION** - A temporary sediment control barrier made of standard concrete block and filter stone or stone rip-rap and filter stone surrounding the inlet end of a storm drain pipe or inlet pipe headwall.

2. **PURPOSE** - To remove sediment from storm runoff before it enters into the storm drain system.

3. **APPLICATIONS** - Where existing or proposed storm drain pipes or culverts are to be used prior to final stabilization of the area draining to the pipe inlet. This method is used where the pipe inlet will collect relatively heavy stormwater flows and overflow capability is needed.

4. **LIMITATIONS** - Ponding will occur around the pipe inlet with possible localized flooding as the result. Excavation of a sediment storage area can make final channel stabilization difficult and may create a separate erosion problem if not properly constructed. Do not use Cinder Block Pipe Inlet Protection for pipes larger than 36" in diameter.

5. **DESIGN CRITERIA** -
   - A. Volume - 1800 cubic feet per acre of drainage area.
   - B. Side Slopes - 1.5H:1V or flatter.
   - C. Top of Stone and Sediment Storage - ½ of inlet pipe diameter.

6. **MATERIAL SPECIFICATIONS** -
   - A. Concrete Block - ASTM C 139, Concrete Masonry Unit for Construction.
   - B. Wire Fabric - Standard galvanized hardware fabric with ½" by ½" openings.
   - C. Filter Stone - NCTCOG Specification 2.1.8.(e).
   - D. Stone Rip-Rap - NCTCOG Specification 2.1.6.(b)(2), Type A.

7. **MAINTENANCE REQUIREMENTS** - Pipe inlet protection should be inspected weekly and after major rain events to ensure that the device is functioning properly. Remove sediment from the sediment storage area when the depth of sediment has built up to one-half of the design depth. If de-watering of the storage volume is not occurring, clean or replace the filter stone surrounding the pipe inlet. Clean the stone surface the first few times by raking. Repeated sediment build-up will require filter stone replacement.

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION AND PERMIT PURPOSES.
DATE: 10/31/06

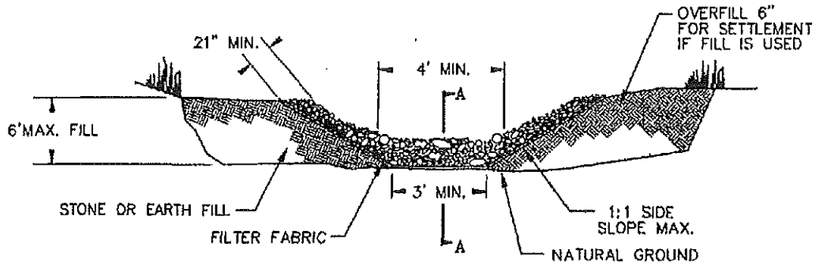
STATE OF TEXAS
JOHN W. BIRKHOFF
54137
REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

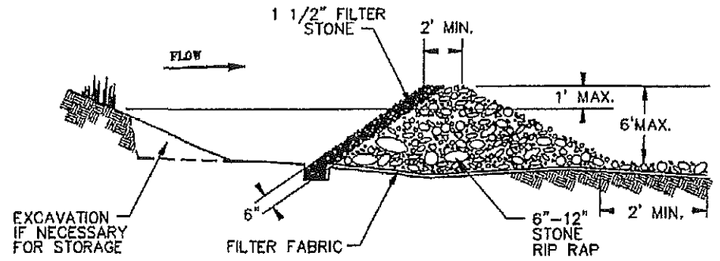
ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STORM WATER POLLUTION PREVENTION PLAN DETAILS

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 50
DRAWN BY: TJH	DATE: SEPTEMBER 2006	OF 88 SHEETS



VIEW LOOKING UPSTREAM



SECTION

STONE OUTLET SEDIMENT TRAP

N.T.S.

5.13 STONE OUTLET SEDIMENT TRAP

1. **DESCRIPTION** - A ponding area formed by placing an earth and/or stone embankment across a drainageway or swale. The ponding area may be natural or improved to provide the required storage volume.

2. **PURPOSE** - To detain sediment laden runoff long enough to allow the majority of the sediment to settle from the water and to allow diffused runoff from the outlet.

3. **APPLICATIONS** - Normally used where the natural topography allows for the construction of the embankment to form the ponding area. Diversions, drainage improvements, and localized grading will allow placement in almost any location that has adequate space for the storage area and will accept the runoff from the disturbed site. The stone outlet sediment trap can be used instead of the standard sediment basin.

4. **LIMITATIONS** - Do not place device in a live stream. Avoid placing in areas planned for future improvements such as pavement or buildings. Inlet channels or pipe should be located as far away from the stone outlet as is practicable to allow for maximum sediment settling time in the basin.

5. **DESIGN CRITERIA** -
   - A. Drainage Area - 30 acres, maximum.
   - B. Storage Volume - 1800 cubic feet per acre of disturbed land draining to the device.
   - C. Surface Area of Storage Area - 1% (0.01) of the area draining to the device.
   - D. Embankment Height - 6 feet (maximum) to top.
   - E. Embankment Slopes - 1.5H:1V or flatter.
   - F. Embankment Top Width - 2 feet (minimum)
   - G. Stone Outlet Width - 4 feet (minimum)
   - H. Outlet Capacity - 10-year design storm, C = 0.50, Max. Tc = 15 minutes.
   - I. Freeboard @ Design Flow - 6 inches.

6. **MATERIAL SPECIFICATIONS** -
   - A. Stone Rip-Rap - NCTCOG Specification 2.1.6.(b)(2), Type A or re-cycled concrete meeting the same gradation.
   - B. Filter Stone - NCTCOG Specification 2.1.8.(e).
   - C. Filter Fabric - NCTCOG Specification 2.23.4.

7. **MAINTENANCE REQUIREMENTS** - Stone outlet sediment traps should be inspected weekly and after major rain events to ensure that the device is functioning properly. Remove sediment from the storage area when the depth of sediment has built up to one-half the height of the stone outlet. Inspect the downstream base of the stone outlet and the downstream flow channel to ensure that no excessive erosion or gullies have developed and repair as necessary. The sediment storage area should drain within 48 to 72 hours after a rain event. The filter stone on the upstream face of the stone outlet may require cleaning or replacement if standing water remains for longer periods.

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION AND PERMIT PURPOSES
DATE: 10/31/06

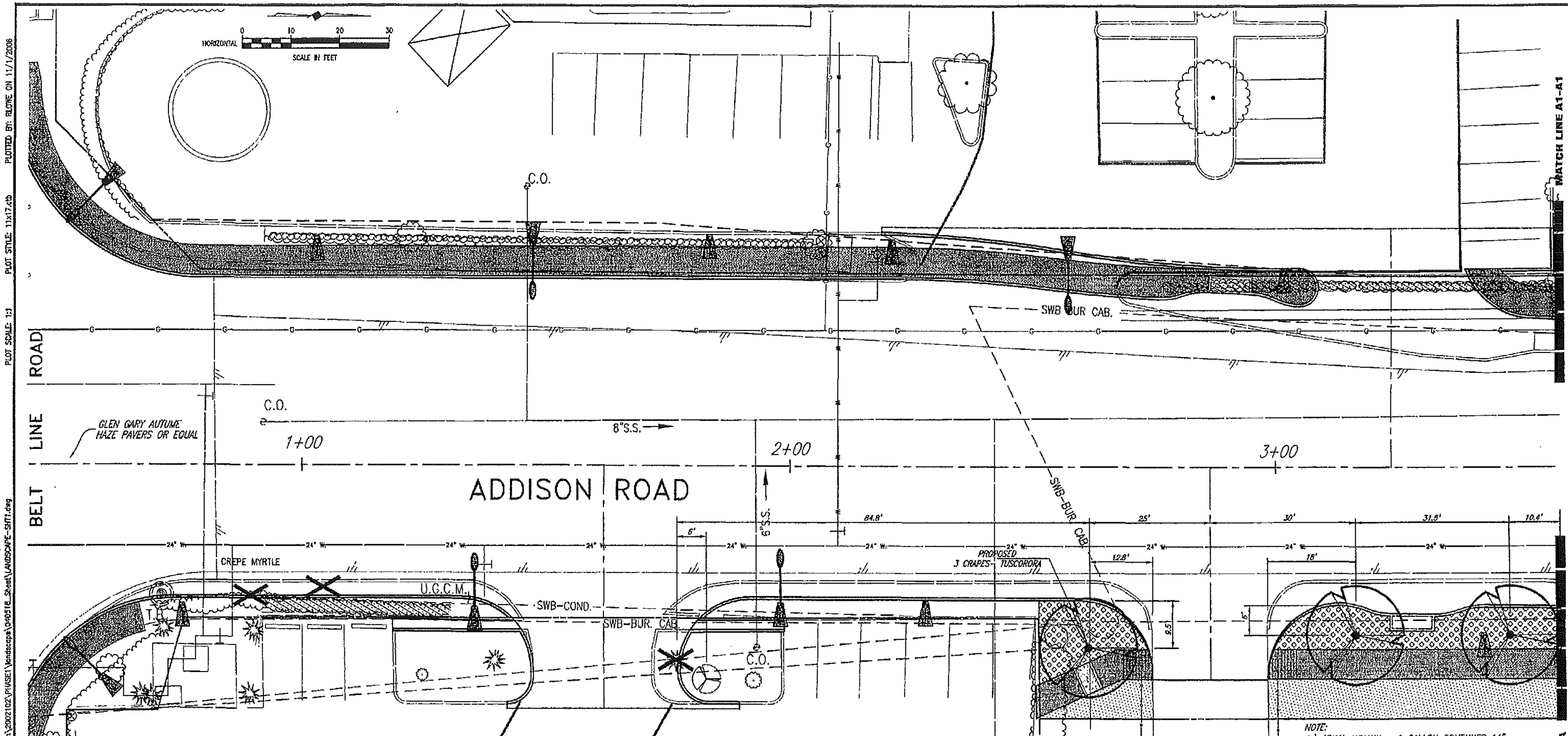
STATE OF TEXAS
JOHN W. BIRKHOFF
64187
REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
STORM WATER POLLUTION PREVENTION PLAN DETAILS

BIRKHOFF, HENDRICKS & CONWAY L. L. P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: J.W.B.	PROJECT: 2002 102	SHEET NO. 51
DRAWN BY: TJH	DATE: SEPTEMBER 2006	OF 88 SHEETS



GENERAL NOTES

1. ALL DIMENSIONS ARE FROM CENTER OF TREE TRUNK AND / OR BACK OF CURB.
2. REFERENCE ENGINEER'S DRAWINGS FOR IDENTIFICATION OF HARDSCAPE MATERIALS.
3. CONTRACTOR TO VERIFY ALL AND STAKE ALL TREE DIMENSIONS PRIOR TO INITIATING WORK.
4. CONTRACTOR TO LOCATE AND VERIFY ALL BURIED UTILITIES AND PROPOSED UTILITIES PRIOR TO INITIATING ANY EXCAVATION.
5. ALL NEWLY PLANTED LANDSCAPE AREAS TO HAVE A FULLY AUTOMATIC SUBSURFACE IRRIGATION SYSTEM EQUIPPED WITH FREEZE SENSOR AND RAIN STATS. SEE IRRIGATION PLANS.
6. ANY PLACE LANDSCAPE BED ABUTS TURF AREA, REQUIRE STEEL EDGING FOR SEPERATION. EXISTING LANDSCAPE MATERIALS LOCATED ON CITY PROPERTY THAT CONFLICT WITH ROAD EXPANSION OR PROPOSED CITY SIDEWALK CONSTRUCTION TO BE REMOVED. REPAIR WITH SOLID SOD GRASS TO MATCH EXIST. OR NOTED OTHERWISE.
7. EXISTING PLANT MATERIAL TO REMAIN. CONCTRACTOR TO COORDINATE WITH PROPERTY OWNER ON MAINTAINING EXISTING LANDSCAPE IRRIGATION.
8. CONTRACTOR TO NOTIFY CITY OF ADDISSON PRIOR TO REMOVAL OF EXISTING TREES TO VERIFY EXACT TREES TO BE REMOVED. MAINTAIN ANY EXISTING TREE AS DIRECTED BY THE CITY OF ADDISON.

6"S.S.

PEIWEI
4801 BELT LI

LEGEND

- EXISTING TREE TO BE REMOVED
- PROP. SOLID SOD COMMON BRMUDA GRASS TURF
- PROP. 1 GAL. ASIAN JASMINE GROUND COVER
- EXIST. PLANT MATERIAL TO BE REMOVED
- EXIST. PLANT MATERIAL TO REMAIN
- PROPOSED CRAPES–TUSCORORA (65 GALLON)
- EXIST. TREE TO REMAIN
- PROP. SIDEWALK
- PROP. STREET LIGHT
- PROP. PEDESTRIAN LIGHT

NOTE:
A.) ASIAN JASMAIN – 1 GALLON CONTAINER 14" O.C. PLANING BEDS TO BE SLIGHTLY CROWNED
B.) FENCE OFF AT DRIP LINE TO PROTECT TREES.

MATCH LINE A-A

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
DATE: 10/31/06

STATE OF TEXAS
JOHN W. BIRKHOFF
54137
REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
ADDISON ROAD LANDSCAPE

BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: B.H.C.	PROJECT: 2002 102	SHEET NO. 52
DRAWN BY: B.H.C.	DATE: SEPTEMBER 2006	OF 68 SHEETS

PLOTTED BY: RLOWE ON 11/1/2006
PLOT STYLE: 11x17.ctb
PLOT SCALE: 1:1
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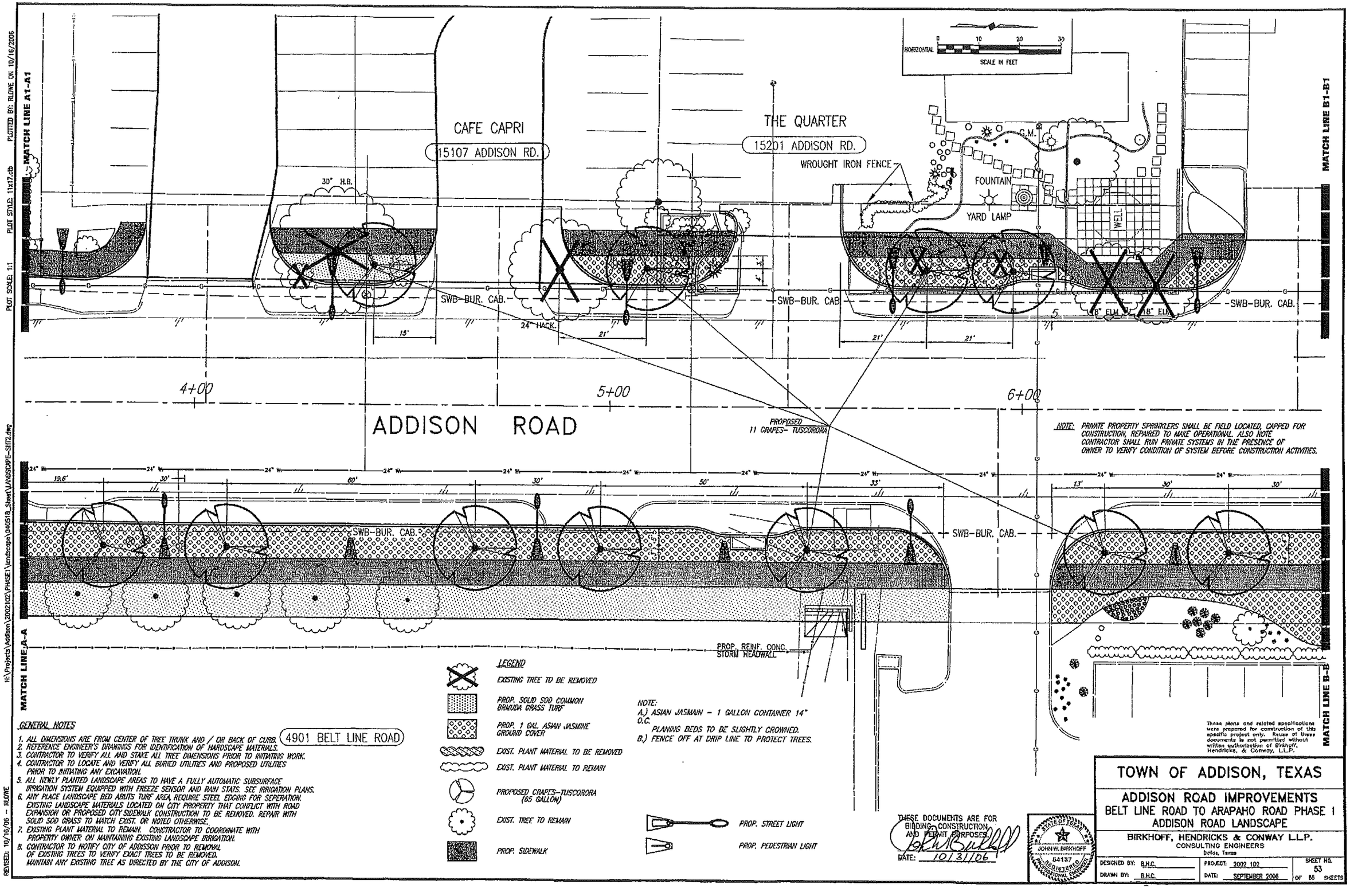
REVISED: 10/16/06 – RLOWE



LEGEND

- EXISTING TREE TO BE REMOVED
- PROP. SOLID SOD COMMON BRMUDA GRASS TURF
- PROP. 1 GAL. ASIAN JASMINE GROUND COVER
- EXIST. PLANT MATERIAL TO BE REMOVED
- EXIST. PLANT MATERIAL TO REMAIN
- PROPOSED CRAPES-TUSCORORA (65 GALLON)
- EXIST. TREE TO REMAIN
- PROP. SIDEWALK
- PROP. STREET LIGHT
- PROP. PEDESTRIAN LIGHT

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PLANING BEDS TO BE SLIGHTLY CROWNED.
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GENERAL NOTES

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4. CONTRACTOR TO LOCATE AND VERIFY ALL BURIED UTILITIES AND PROPOSED UTILITIES PRIOR TO INITIATING ANY EXCAVATION.
5. ALL NEWLY PLANTED LANDSCAPE AREAS TO HAVE A FULLY AUTOMATIC SUBSURFACE IRRIGATION SYSTEM EQUIPPED WITH FREEZE SENSOR AND RAIN STATS. SEE IRRIGATION PLANS.
6. ANY PLACE LANDSCAPE BED ABUTS TURF AREA, REQUIRE STEEL EDGING FOR SEPERATION. EXISTING LANDSCAPE MATERIALS LOCATED ON CITY PROPERTY THAT CONFLICT WITH ROAD EXPANSION OR PROPOSED CITY SIDEWALK CONSTRUCTION TO BE REMOVED. REPAIR WITH SOLID SOD GRASS TO MATCH EXIST. OR NOTED OTHERWISE.
7. EXISTING PLANT MATERIAL TO REMAIN. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER ON MAINTAINING EXISTING LANDSCAPE IRRIGATION.
8. CONTRACTOR TO NOTIFY CITY OF ADDISSON PRIOR TO REMOVAL OF EXISTING TREES TO VERIFY EXACT TREES TO BE REMOVED. MAINTAIN ANY EXISTING TREE AS DIRECTED BY THE CITY OF ADDISON.

4901 BELT LINE ROAD

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
DATE: 10/31/06

JOHN W. BIRKHOFF
84137
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
ADDISON ROAD LANDSCAPE

BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: B.H.C.	PROJECT: 2002 102	SHEET NO. 53
DRAWN BY: B.H.C.	DATE: SEPTEMBER 2006	OF 55 SHEETS

SAMBUCA

15207 ADDISON RD.

MATCH LINE C1-B1

MATCH LINE C1-C1

24" ELM

24" ASH

16" HACK

18" ELM

HOLLY

6" CEDAR ELM

2+EVERGREEN

8" CEDAR ELM

HOLLY

1/2" IRF

24" COTTONWOOD

24' 30' 30' 30' 30' 30' 20.04' 23' 23'

7+00 8+00 ADDISON ROAD 9+00

PROPOSED
14 CRAPES- TUSCORORA

30' 30' 30' 15'

"X" IN CONC.

MATCH LINE B-B

MATCH LINE C-C

24' 30' 29' 28.86'

1/2" IRF

STEAK HOUSE

ADDISON RD.

BIDJAAR BOUTIQUE HOTELS, LTD.

15280 ADDISON RD., SUITE

GENERAL NOTES

1. ALL DIMENSIONS ARE FROM CENTER OF TREE TRUNK AND / OR BACK OF CURB.
2. REFERENCE ENGINEER'S DRAWINGS FOR IDENTIFICATION OF HARDSCAPE MATERIALS.
3. CONTRACTOR TO VERIFY ALL AND STAKE ALL TREE DIMENSIONS PRIOR TO INITIATING WORK.
4. CONTRACTOR TO LOCATE AND VERIFY ALL BURIED UTILITIES AND PROPOSED UTILITIES PRIOR TO INITIATING ANY EXCAVATION.
5. ALL NEWLY PLANTED LANDSCAPE AREAS TO HAVE A FULLY AUTOMATIC SUBSURFACE IRRIGATION SYSTEM EQUIPPED WITH FREEZE SENSOR AND RAIN STATS. SEE IRRIGATION PLANS.
6. ANY PLACE LANDSCAPE BED ABUTS TURF AREA, REQUIRE STEEL EDGING FOR SEPERATION. EXISTING LANDSCAPE MATERIALS LOCATED ON CITY PROPERTY THAT CONFLICT WITH ROAD EXPANSION OR PROPOSED CITY SIDEWALK CONSTRUCTION TO BE REMOVED. REPAIR WITH SOLID SOD GRASS TO MATCH EXIST. OR NOTED OTHERWISE.
7. EXISTING PLANT MATERIAL TO REMAIN CONTRACTOR TO COORDINATE WITH PROPERTY OWNER ON MAINTAINING EXISTING LANDSCAPE IRRIGATION.
8. CONTRACTOR TO NOTIFY CITY OF ADDISSON PRIOR TO REMOVAL OF EXISTING TREES TO VERIFY EXACT TREES TO BE REMOVED. MAINTAIN ANY EXISTING TREE AS DIRECTED BY THE CITY OF ADDISON.

NOTE:
A.) ASIAN JASMAIN - 1 GALLON CONTAINER 14" O.C.
PLANING BEDS TO BE SLIGHTLY CROWNED.
B.) FENCE OFF AT DRIP LINE TO PROTECT TREES.

LEGEND

- EXISTING TREE TO BE REMOVED
- PROP. SOLID SOD COMMON BRMUDA GRASS TURF
- PROP. 1 GAL. ASIAN JASMINE GROUND COVER
- EXIST. PLANT MATERIAL TO BE REMOVED
- EXIST. PLANT MATERIAL TO REMAIN
- PROPOSED CRAPES-TUSCORORA (65 GALLON)
- EXIST. TREE TO REMAIN
- PROP. SIDEWALK
- PROP. STREET LIGHT
- PROP. PEDESTRIAN LIGHT

HORIZONTAL 0 10 20 30
SCALE IN FEET

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
DATE: 10/31/06

STATE OF TEXAS
JOHN W. BIRKHOFF
54137
REGISTERED
PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
ADDISON ROAD LANDSCAPE

BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: B.H.C.	PROJECT: 2002 102	SHEET NO. 54
DRAWN BY: B.H.C.	DATE: SEPTEMBER 2006	OF 68 SHEETS

MATCH LINE C1-C1

MATCH LINE D1-D1

6" C.E. ELM

15'

15'

29'

39'

10+00

11+00

ADDISON ROAD

12+00

13+0

PROPOSED
10 CRAPES- TUSCORORA

2.3'

47.3'

45.5'

44.1'

42.4'

41.9'

24.8'

6" OAK

12" OAK

12" OAK

12" OAK

12" OAK

12" OAK

12" OAK

10" OAK

10" OAK

10" OAK

8" OAK

12" OAK

18" OAK

MATCH LINE C-C

MATCH LINE D-D

ARAPAHO ROAD

NOTE:
A.) ASIAN JASMAIN - 1 GALLON CONTAINER 14" O.C.
PLANING BEDS TO BE SLIGHTLY CROWNED.
B.) FENCE OFF AT DRIP LINE TO PROTECT TREES.

GENERAL NOTES

1. ALL DIMENSIONS ARE FROM CENTER OF TREE TRUNK AND / OR BACK OF CURB.
2. REFERENCE ENGINEER'S DRAWINGS FOR IDENTIFICATION OF HARDSCAPE MATERIALS.
3. CONTRACTOR TO VERIFY ALL AND STAKE ALL TREE DIMENSIONS PRIOR TO INITIATING WORK.
4. CONTRACTOR TO LOCATE AND VERIFY ALL BURIED UTILITIES AND PROPOSED UTILITIES PRIOR TO INITIATING ANY EXCAVATION.
5. ALL NEWLY PLANTED LANDSCAPE AREAS TO HAVE A FULLY AUTOMATIC SUBSURFACE IRRIGATION SYSTEM EQUIPPED WITH FREEZE SENSOR AND RAIN STATS. SEE IRRIGATION PLANS.
6. ANY PLACE LANDSCAPE BED ABUTS TURF AREA, REQUIRE STEEL EDGING FOR SEPERATION. EXISTING LANDSCAPE MATERIALS LOCATED ON CITY PROPERTY THAT CONFLICT WITH ROAD EXPANSION OR PROPOSED CITY SIDEWALK CONSTRUCTION TO BE REMOVED. REPAIR WITH SOLID SOD GRASS TO MATCH EXIST. OR NOTED OTHERWISE.
7. EXISTING PLANT MATERIAL TO REMAIN. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER ON MAINTAINING EXISTING LANDSCAPE IRRIGATION.
8. CONTRACTOR TO NOTIFY CITY OF ADDISSON PRIOR TO REMOVAL OF EXISTING TREES TO VERIFY EXACT TREES TO BE REMOVED. MAINTAIN ANY EXISTING TREE AS DIRECTED BY THE CITY OF ADDISON.

LEGEND

- EXISTING TREE TO BE REMOVED
- PROP. SOLID SOD COMMON BRAIUDA GRASS TURF
- PROP. 1 GAL. ASIAN JASMINE GROUND COVER
- EXIST. PLANT MATERIAL TO BE REMOVED
- EXIST. PLANT MATERIAL TO REMAIN
- PROPOSED CRAPES-TUSCORORA (65 GALLON)
- PROPOSED LOROPETALUM BUSH (CHINESE FRINGE) (5 GALLON, 3' O.C.)
- EXIST. TREE TO REMAIN
- PROP. SIDEWALK
- PROP. STREET LIGHT
- PROP. PEDESTRIAN LIGHT

MINOL CENTRE

15280 ADDISON RD.

HORIZONTAL 0 10 20 30

SCALE IN FEET

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES

DATE: 10/31/06

STATE OF TEXAS
JOHN W. BIRKHOFF
84137
REGISTERED
PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
ADDISON ROAD LANDSCAPE

BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: B.H.C.
DRAWN BY: B.H.C.
PROJECT: 2002 102
DATE: SEPTEMBER 2006
SHEET NO. 55 OF 68 SHEETS

PLOTTED BY: RLOWE ON 9/28/2006

PLOT STYLE: 11x17.ctb

PLOT SCALE: 1:1

H:\Projects\Addison\2002102\PHASE1\landscape\040518_Sheet\LANDSCAPE-SHTS.dwg

REVISED: 9/28/06 - RLOWE

MATCH LINE D1-D1

MATCH LINE D-D

0

14+00

15+00

ADDISON ROAD

ARAPAHO ROAD

D.A.R.T.

M.C.I. FIBER OPTICS

6" DORCHESTER

15350 ADDISON RD

HORIZONTAL 0 10 20 30

SCALE IN FEET

LANDSCAPE BEDS NOTES

IF MAKING A NEW BED IN AN AREA COVERED WITH GRASS AND WEEDS, KILL THE UNWANTED PLANTS BY SPRAYING WITH A GLYPHOSATE PRODUCT (E.G. ROUNDUP) WHEN THE GRASS AND WEEDS ARE ACTIVELY GROWING. TWO APPLICATIONS ARE USUALLY REQUIRED TO KILL DIFFICULT WEEDS SUCH AS BERMUDAGRASS. READ AND FOLLOW ALL LABEL DIRECTIONS.

CONSTRUCT RAISED BEDS, THE CENTERS OF WHICH ARE 3 INCHES ABOVE THE SURROUNDING SOIL. DURING FINAL SHAPING, THE BED SHOULD BE CROWNED (I.E. MADE 3 INCHES HIGHER IN THE CENTER THAN AT THE EDGES), IN ORDER TO HELP DRAIN AWAY EXCESS WATER.

TO FILL BEDS:
ADD 3 INCHES OF EXPANDED SHALE (E.G. TRUGRO SOIL CONDITIONER), TILL IN TO A DEPTH OF 8-10 INCHES.

ADD 3 INCHES OF FINISHED COMPOST, TILL IN TO A DEPTH OF 8-10 INCHES.

AFTER READING AND FOLLOWING ALL LABEL DIRECTIONS, ADD APPROPRIATE FERTILIZER.

TURF GRASS NOTES

REMOVE ANY UNWANTED VEGETATION WITH PRODUCTS SUCH AS ROUNDUP OR FINALE. NOTE, FOR DIFFICULT TO CONTROL WEEDS SUCH AS BERMUDAGRASS IT MAY TAKE SEVERAL APPLICATIONS TO EFFECTIVELY REMOVE THESE HARD TO CONTROL WEEDS. KEY IS TO ALLOW ENOUGH TIME PRIOR TO PLANTING TO EFFECTIVELY REMOVE THE WEEDS. FOR ROUNDUP AND FINALE, ALLOW 7 TO 10 DAYS PER APPLICATION OF THE HERBICIDE.

PRIOR TO PLANTING THE NEW LAWN, APPLY A TWO INCH LAYER OF ORGANIC MATERIAL TO THE SOIL SURFACE AND THEN TILL THE MATERIAL INTO THE TOP 4 TO 6 INCHES OF TOPSOIL.

TREE REMOVAL =

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.

DATE: 10/3/06

STATE OF TEXAS JOHN W. BIRKHOFF 64137 REGISTERED PROFESSIONAL ENGINEER

TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
ADDISON ROAD LANDSCAPE

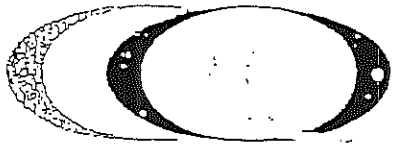
BIRKHOFF, HENDRICKS & CONWAY L.L.P.
CONSULTING ENGINEERS
Dallas, Texas

DESIGNED BY: B.H.C.	PROJECT: 2002 102	SHEET NO. 56
DRAWN BY: B.H.C.	DATE: SEPTEMBER 2006	OF 58 SHEETS

Appendix E

Inspector Qualifications and Inspection Reports

Storm Water Pollution Prevention Plan Inspector Qualifications	
Inspectors Name	Ronnie Brock Inspector Storm Water Solutions office - 972-636-7717 cell - 214-394-6757
Title	Project Inspector
Training Received	Region 6 NPDES Construction General Permit Compliance, Best Management Practices and Inspection Training February 2000- 2002 By: International Erosion Control Association Storm Water Permitting March, 2004 By: Texas Commission on Environmental Quality, San Antonio TX City of Dallas Storm Water Management Training Sessions - 2004
Training Covered	How to Select, Install and Inspect Construction Site BMP's for NPDES Storm Water Permit Compliance How to Write and Implement a Storm Water Pollution Prevention Plan Practical Approaches for Effective Erosion & Sediment Control Simple Tools for NPDES Compliance on Construction Sites City of Dallas, Storm Water Training and Partnering Sessions
Construction Experience	19 Years in Construction Industry Positions Held: Project Manager / Safety and Environmental Manager / Safety and Competent Persons Certified Instructor
Storm Water Construction Inspection Experience	Storm Water Construction Inspections since February, 2002



International Erosion Control Association

P O Box 774904, Steamboat Springs, Colorado 80477 4904 ~ 970 879 3010 ~ www.ieca.org

CERTIFICATE OF COMPLETION

May it be known by all who read this that

Ronnie Brock

has successfully completed

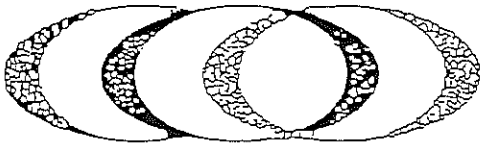
How to Select, Install and Inspect Construction Site BMPs for NPDES Stormwater Permit Compliance

and has earned 0.6 *Continuing Education Units.*

Presented this 25th *day of* February, 2002

Executive Director

President



International Erosion Control Association

P.O. Box 774904 Steamboat Springs, Colorado 80477-4904 970.879.3510 www.ieca.org

CERTIFICATE OF COMPLETION

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has successfully completed

How to Write and Implement a Stormwater Pollution Prevention Plan

and has earned 0.6 *Continuing Education Units*

Presented this 26th *day of* February, 2002

International Erosion Control Association
P.O. Box 774904, Steamboat Springs, CO 80477-4904

Certificate of Completion

May it be known by all who read this that

Ronnie Brock

has successfully completed the

Practical Approaches for Effective Erosion & Sediment Control

and has been awarded 0.6 *Continuing Education Units.*

Presented this 21st *day of* February, 20 00.

President

International Erosion Control Association

P. O. Box 774904, Steamboat Springs, CO 80477-4904

Certificate of Completion

May it be known by all who read this that

Ronnie Brock

has successfully completed the

Simple Tools for NPDES Compliance on Construction Sites

and has been awarded 0.6 *Continuing Education Units.*

Presented this 22nd *day of* February, 20 00.

President

Storm Water Pollution Prevention Plan Inspector Qualifications	
Inspectors Name	**Ray Bailey** **Inspector: Storm Water Solutions** **office - 972-636-7717**
Title	**Project Inspector**
Training Received	TPDES Construction General Permit Compliance, Best Management Practices and Inspection Training October 24. 2004 By: Storm Water Solutions
Training Covered	History of the TPDES Permitting Process TPDES Compliance and Regulations, Including Operator Responsibilites Erosion and Sedimentation Processes Selecting and installing proper controls Good Housekeeping and non-structural BMP's, including proper storage techniques Inspection Process, reports, record-keeping, compliance and maintenance of controls
Storm Water Construction Inspection Experience	Storm Water Project Inspections since October 24, 2004

STORM WATER SOLUTIONS

Storm Water Pollution Prevention Certificate

Ray Bailey

Has successfully completed Storm Water Pollution Prevention Training for Construction Activities:

Items covered:
TPDES Construction General Permit Compliance
Best Management Practices and Inspection Training
Permitting Process, Compliance and Regulations, Including Operator Responsibilities
Erosion and Sedimentation Processes / Good Housekeeping and non-structural BMP's,
Inspection Process- Reports- Record-keeping / Compliance and maintenance of controls

Ronnie Brock / Vice-President

Storm Water Solutions
October 24, 2004

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION REPORT

PROJECT NAME:				
PROJECT LOCATION:				
CONTRACTOR:				
DATE OF INSPECTION				
INSPECTION CONDUCTED BY:	Storm Water Solutions /			
QUALIFICATIONS OF INSPECTOR:	SEE SWPPP			
TYPE OF INSPECTION: (circle one)	14 Day		7 Day	Rain Event

Inspection:	In Conformance			Effective Pollutant Control Practice
	Y	N	NA	Yes / No
Construction Entrance				Yes / No
Silt Fence				Yes / No
Curb Inlet Protection				Yes / No
Soil Stabilization				Yes / No
Solid Waste Disposal				Yes / No
Sanitary / Septic				Yes / No
Equipment Fueling / Storage				Yes / No
Other Controls/				Yes / No

Site Requirements:	Y	N	NA	Comments
Are TPDES permits, for all permittees posted at the construction entrance?				
Is contact information for all permittees posted at the construction entrance?				
Are copies of the inspection reports included with the SWPPP?				
If the BMP's have been modified, has the SWPPP been modified?				
Are there any signs of discharge leaving the site?				
Are all BMP's functioning as intended?				
Any Additional BMP's Required?				

NOTE: All items of non compliance shall be repaired/installed within (7) days of inspection. Repairs / Installation shall be completed immediately, if storm conditions are imminent.

VIOLATIONS NOTED:

COMMENTS:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ **Date:** _____

Printed Name: _____ **Title: Inspector**

white - contractor yellow - contractor office pink - inspector

Appendix E

Inspector Qualifications and Inspection Reports

Storm Water Pollution Prevention Plan Inspector Qualifications	
Inspectors Name	**Ronnie Brock** **Inspector Storm Water Solutions** **office - 972-636-7717** **cell - 214-394-6757**
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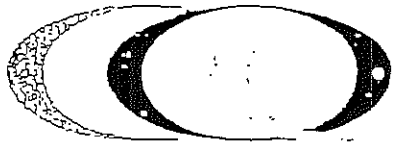
Construction Experience	19 Years in Construction Industry Positions Held: Project Manager / Safety and Environmental Manager / Safety and Competent Persons Certified Instructor
Storm Water Construction Inspection Experience	Storm Water Construction Inspections since February, 2002



International Erosion Control Association

P O Box 774904, Steamboat Springs, Colorado 80477 4904 – 970 879 3010 – www.ieca.org

CERTIFICATE OF COMPLETION

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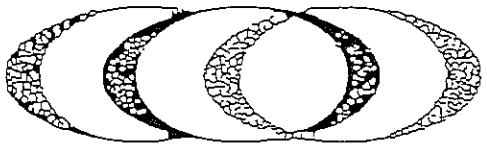
and has earned 0.6 *Continuing Education Units.*

Presented this 25th *day of* February, 2002

Executive Director

President



International Erosion Control Association

P O Box 774903 Steamboat Springs Colorado 80477 4904 970 879 3610 www.ieca.org

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How to Write and Implement a Stormwater Pollution Prevention Plan

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Presented this 26th *day of* February, 2002

Executive Director

Director

International Erosion Control Association
P.O. Box 774904, Steamboat Springs, CO 80477-4904

Certificate of Completion

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Practical Approaches for Effective Erosion & Sediment Control

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President

International Erosion Control Association
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Presented this 22nd *day of* February, *20* 00

Dick Stanley

President

Storm Water Pollution Prevention Plan Inspector Qualifications	
Inspectors Name	**Ray Bailey** **Inspector: Storm Water Solutions** **office - 972-636-7717**
Title	**Project Inspector**
Training Received	TPDES Construction General Permit Compliance, Best Management Practices and Inspection Training October 24. 2004 By: Storm Water Solutions
Training Covered	History of the TPDES Permitting Process TPDES Compliance and Regulations, Including Operator Responsibilites Erosion and Sedimentation Processes Selecting and installing proper controls Good Housekeeping and non-structural BMP's, including proper storage techniques Inspection Process, reports, record-keeping, compliance and maintenance of controls
Storm Water Construction Inspection Experience	Storm Water Project Inspections since October 24, 2004

STORM WATER SOLUTIONS

Storm Water Pollution Prevention Certificate

Ray Bailey

Has successfully completed Storm Water Pollution Prevention Training for Construction Activities:

Items covered:
TPDES Construction General Permit Compliance
Best Management Practices and Inspection Training
Permitting Process, Compliance and Regulations, Including Operator Responsibilities
Erosion and Sedimentation Processes / Good Housekeeping and non-structural BMP's,
Inspection Process- Reports- Record-keeping / Compliance and maintenance of controls

Ronnie Brock

Ronnie Brock / Vice-President

Storm Water Solutions
October 24, 2004

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION REPORT

PROJECT NAME:				
PROJECT LOCATION:				
CONTRACTOR:				
DATE OF INSPECTION				
INSPECTION CONDUCTED BY:	Storm Water Solutions /			
QUALIFICATIONS OF INSPECTOR:	SEE SWPPP			
TYPE OF INSPECTION: (circle one)	14 Day		7 Day	Rain Event
Inspection:	In Conformance			Effective Pollutant Control Practice
	Y	N	NA	Yes / No
Construction Entrance				Yes / No
Silt Fence				Yes / No
Curb Inlet Protection				Yes / No
Soil Stabilization				Yes / No
Solid Waste Disposal				Yes / No
Sanitary / Septic				Yes / No
Equipment Fueling / Storage				Yes / No
Other Controls/				Yes / No
Site Requirements:	Y	N	NA	Comments
Are TPDES permits, for all permittees posted at the construction entrance?				
Is contact information for all permittees posted at the construction entrance?				
Are copies of the inspection reports included with the SWPPP?				
If the BMP's have been modified, has the SWPPP been modified?				
Are there any signs of discharge leaving the site?				
Are all BMP's functioning as intended?				
Any Additional BMP's Required?				

NOTE: All items of non compliance shall be repaired/installed within (7) days of inspection. Repairs / Installation shall be completed immediately, if storm conditions are imminent.

VIOLATIONS NOTED:

COMMENTS:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: **Date:**

Printed Name: **Title: Inspector**

white - contractor yellow - contractor office pink - inspector

Appendix F

NOI / NOT

NOTICE OF INTENT INFORMATION

This Appendix contains information related to the submittal of a Notice of Intent (NOI) to the TCEQ for coverage under TPDES General Permit No. TXR150000.

Since the project covered by this Permit has a combined exposed area between 1 to 5 acres it is classified as a "Small Construction Activity" per part I of the TPDES General Permit No. TXR150000. Being a "Small Construction Activity" the site is not required to submit an NOI provided certain conditions are met. These conditions as specified in Part II.D.2 of the Permit are:

- Development and implementation of a SWPPP in accordance to the provisions of the Permit.
- Implementation of the SWPPP prior to commencing construction activities.
- Complete and sign a construction site notice provided in this SWPPP
- Post the completed and signed construction site notice at the construction site.
- Provide a copy of the signed and certified construction site notice to the Municipal Separate Storm Sewer System Operator at least 2 days prior to commencement of construction activities.

The conditions cited above will be met prior to start of construction activities covered by this SWPPP.

Appendix G

TPDES Construction Site Notice

STORM WATER SOLUTIONS
422 East I-30
Suite C
Royse City, Texas 75189

Town of Addison
16801 Westgrove Rd.
Addison, Texas 75001

CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	**AARON RUSSELL - TOWN OF ADDISON** **# 972-450-2837**
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	**CONSTRUCTION FOR:** **ADDISON ROAD PAVING AND DRAINAGE - PHASE I** **FROM BELT LINE ROAD TO ARAPAHO ROAD** **ADDISON, TEXAS** **CONSTRUCTION PERIOD:** **START DATE: JANUARY 16, 2007** **END DATE: JANUARY 16 , 2008**
Location of Storm Water Pollution Prevention Plan :	**JRJ PAVING OFFICE @ 940-320-6340**

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I AARON RUSSELL (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

ASST. DIR. OF PUBLIC WORKS 1/30/07

Signature and Title Date

CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	**JIMMY MARTIN - PROJECT MANAGER / JRJ PAVING, LP** **office #940-320-6340 cell# 214-499-3917**
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	**CONSTRUCTION FOR:** **ADDISON ROAD PAVING AND DRAINAGE - PHASE I** **FROM BELT LINE ROAD TO ARAPAHO ROAD** **ADDISON, TEXAS** **CONSTRUCTION PERIOD:** **START DATE: JANUARY 16, 2007** **END DATE: JANUARY 16 , 2008**
Location of Storm Water Pollution Prevention Plan :	**JRJ PAVING OFFICE @ 940-320-6340**

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I Marty Murphy (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Business Manager — 1-11-07

Signature and Title — Date

Appendix H

Best Management Practices

CHAPTER 4

BEST MANAGEMENT PRACTICES

4.1 Overview

In order to address the requirements of pollution reduction at construction sites, a variety of techniques should be employed to reduce soil erosion, reduce site sediment loss, and manage construction-generated waste and construction related toxic materials. This section provides design criteria for a variety of techniques to address these issues. These Best Management Practices (BMPs) consist of both temporary and permanent methods to reduce pollution from a construction site.

The majority of BMPs address soil loss from the site. For construction sites, soil loss in the form of erosion and sediment due to storm events and wind constitute the majority of pollution generated from construction sites. BMPs that address erosion and sediment control are typically more site specific than waste and toxics management. Erosion and sediment control BMPs are dependent on site slopes, drainage patterns and drainage quantities along with other site-specific conditions. Materials and waste management consists primarily of "good housekeeping" practices which are dependent on the type of construction and the quantity and type of building materials.

4.2 BMP Selection Guide

In preparing the SWPPP, the designer can first use the BMP selection guide on the following pages to determine BMPs applicable to the site. The fact sheets following the selection guide detail the design requirements, maintenance requirements, limitations, and purpose of each of the techniques. These provide the tools for the designer to select the appropriate BMPs and properly locate them on the site, effectively reducing erosion and sediment loss.

The Efficiency Ratings listed for the BMPs are the assumed efficiencies in reducing erosion or trapping sediment for the BMP, assuming the BMPs are designed, installed, and maintained in accordance with the Fact Sheets and based on accommodating the flow and volumes from the design storm. The ratings are useful in comparing the effectiveness of the BMPs. The Efficiency Rating is also used in calculating the Site Rating, which is used by some local governments to ensure adequate SWPPP Design. Appendix E has additional details concerning the BMP Efficiency Ratings and the methodology for calculating the Site Rating.

4.2.1 Erosion Prevention

These BMPs protect the soil to reduce erosion. They are primarily used in perimeter areas around construction sites to either limit flows across the site or limit the erosion in areas disturbed but not active.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
E-1	Interceptor Swale	Route flows around areas of disturbance	1.0
E-2	Diversion Dike	Route flows around areas of disturbance	1.0
E-3	Pipe Slope Drain	Route overland flow on a slope into a pipe to protect the slope	Varies
E-4	Vegetation	Provide natural soil protection through seeding, hydromulch or phasing	0.90
E-5	Mulching	Protect disturbed soil with a layer of hay, straw, or other material	0.90
E-6	Erosion Control Blankets	Protect disturbed soil or slopes with geotextile and biodegradable fabrics	0.90
E-7	Channel Protection	Protects the soil through the use of grass-lining, turf reinforcement mats, or riprap	Varies
E-8	Dust Control	Techniques to limit wind erosion and air-borne soil particles from leaving site	Varies

4.2.2 Sediment Loss Prevention

Construction activities normally result in disturbance on the site due to grading operations, clearing and other operations. Erosion will occur in these disturbed areas and BMPs must be used to contain the sediment from these disturbed areas. The following techniques reduce soil loss from the site by retaining the soil through sedimentation or filtration of the runoff.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
S-1	Silt Fence	Slow and filter runoff to retain sediment	0.75
S-2	Organic Filter Berm	Slow and filter runoff to retain sediment	0.75
S-3	Triangular Sediment Filter Dike	Similar to silt fence but more portable, reusable and sturdy with high flows	0.75
S-4	Inlet Protection	Intercept sediment at curb and field inlets. Should be used in conjunction with other onsite techniques	Varies
S-5	Stone Outlet Sediment Trap	Intercept and filter small concentrated flows such as small creeks and defined waterways	0.85

The Efficiency Ratings listed for the BMPs are the assumed efficiencies in reducing erosion or trapping sediment for the BMP, assuming the BMPs are designed and installed in accordance with the Fact Sheets and based on accommodating the flow and volumes from the design storm.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
S-6	Sediment Basin	Large pond with controlled outflow which allows sediment to settle out of runoff	0.90
S-7	Check Dam	Provide minor detention and retention of sediment for small swales and concentrated flows	0.50
S-8	Temporary Sediment Tank	Provide sedimentation for sediment laden runoff from trenches and depressed areas	0.70
S-9	Stabilized Construction Entrance	Reduce offsite sediment tracking from trucks and construction equipment	N/A
S-10	Wheel Wash	Reduce offsite sediment tracking from trucks and construction equipment	N/A

4.2.3 Materials and Waste Management

These techniques will be applied on the majority of construction projects due to their general topic of reducing waste from construction activities. They form the basis of general housekeeping procedures that should be followed during construction.

BMP ID	BMP Name	Primary Purpose	Efficiency Rating (Fe)
M-1	Debris and Trash Management	Techniques for management of paper, packaging, general building materials, etc.	Very Effective
M-2	Chemical Management	Techniques for management of paints, chemicals, fertilizer, oil and grease, etc.	Very Effective
M-3	Concrete Waste Management	Techniques for disposal of concrete washout, demolished concrete, etc.	Very Effective
M-4	Concrete Sawcutting Waste Management	Techniques for disposal of concrete cuttings from concrete sawing	Effective
M-5	Sandblasting Waste Management	Techniques for disposal of sandblasting waste and containment of wastes during operations	Effective
M-6	Lime Stabilization Management	Control lime runoff from areas being stabilized with hydrated or quicklime	Effective
M-7	Sanitary Facilities	Techniques for control of sanitary waste	Effective

The Efficiency Ratings listed for the BMPs are the assumed efficiencies in reducing erosion or trapping sediment for the BMP, assuming the BMPs are designed and installed in accordance with the Fact Sheets and based on accommodating the flow and volumes from the design storm.

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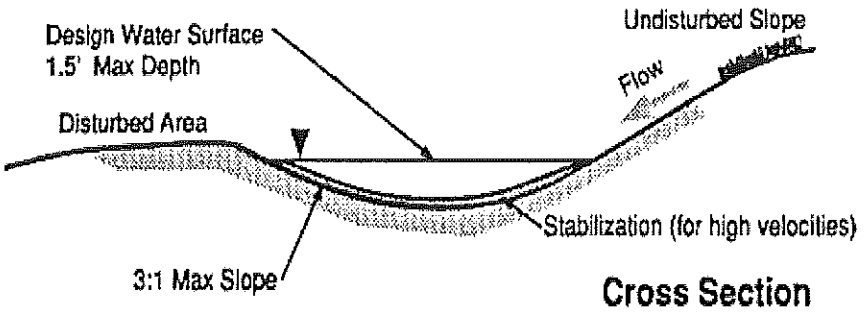
Interceptor Swale



DESCRIPTION

An interceptor swale is a small v-shaped, trapezoidal, or parabolic channel that collects runoff and directs it to a desired location. It can either have a natural grass lining or, depending on slope and design velocity, a protective lining of erosion control matting, crushed stone or concrete.

PRIMARY USE

The interceptor swale can either be used to direct sediment-laden flow from disturbed areas into a controlled outlet or to direct 'clean' runoff around disturbed areas. Since the swale is easy to install during early grading operations, it can serve as the first line of defense in reducing runoff across disturbed areas. As a method of reducing runoff across the disturbed construction area, it reduces the requirements of structural measures to capture sediment from runoff since the flow is reduced. By intercepting sediment laden flow downstream of the disturbed area, runoff can be directed into a sediment basin or other BMP for sedimentation as opposed to long runs of silt fence or other filtration method.

Base on site topography, swales can be effectively used in combination with diversion dikes.

APPLICATIONS

Common applications for interceptor swales include roadway projects, site development projects with substantial offsite flow impacting the site and sites with a large area(s) of disturbance. It can be used in conjunction with diversion dikes to intercept flows. Temporary swales can be used throughout the project to direct flows away from staging, storage and fueling areas along with specific areas of construction. Note that runoff which crosses disturbed areas or is directed into unstabilized swales must be routed into a treatment BMP such as a sediment basin.

Grass lined swales are an effective permanent stabilization technique. The grass effectively filters both sediment and other pollutants while reducing velocity.

DESIGN CRITERIA

- ❑ Maximum depth of flow in the swale shall be 1.5 feet based on a 2-year return period design storm peak flow. Positive overflow must be provided to accommodate larger storms.

Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ● Floatable Materials
- ◒ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=1.00

E-1

North Central Texas Council of Governments

Interceptor Swale

- ❑ The maximum contributing drainage area should be 5 acres or less depending on site conditions.
- ❑ Channels may be trapezoidal, parabolic, or v-shaped; however v-shaped channels may be difficult to stabilize, so they are generally used only where the volume and rate of flow is low.
- ❑ Side slopes of the swale shall be 3:1 or flatter.
- ❑ Minimum design channel freeboard shall be 6 inches.
- ❑ For grades less than 2 percent and velocities less than 6 feet per second, the minimum required channel stabilization shall be grass, erosion control mats or mulching. For grades in excess of 2 percent or velocities exceeding 6 feet per second, stabilization is required in the form of turf reinforcement mats (or a layer of crushed stone or rip-rap with appropriate size, gradation, and thickness depending on flow conditions). Velocities greater than 8 feet per second will require approval by the local jurisdiction and is discouraged.
- ❑ Check dams can be used to reduce velocities in steep swales. See BMP S-7,Check Dam, for design criteria.
- ❑ Interceptor swales must be designed for flow capacity based on Manning's Equation to ensure a proper channel section. Alternate channel sections may be used when properly designed and accepted.
- ❑ Consideration must be given to the possible impact that any swale may have on upstream or downstream conditions.
- ❑ Swales must maintain a negative grade to a controlled outlet.
- ❑ Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment-trapping device.

LIMITATIONS

Interceptor swales must be stabilized quickly upon excavation so as not to contribute to the erosion problem they are addressing.

Swales may be unsuitable to the site conditions (too flat or steep).

For permanent swales, the 1.5 feet maximum depth can be increased as long as provisions for public safety are implemented.

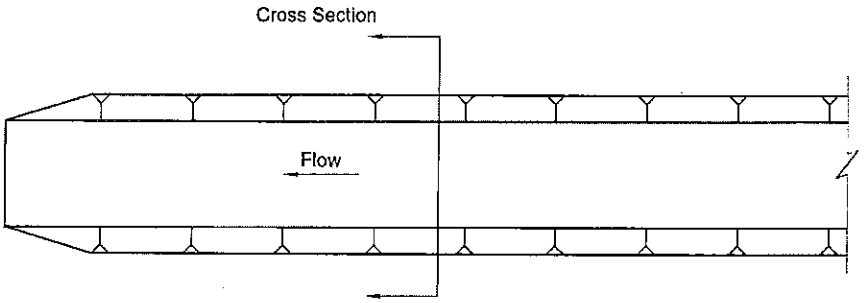
MAINTENANCE REQUIREMENTS

Swales should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to locate and repair any damage to the channel or to clear debris or other obstructions so as not to diminish flow capacity. Damage from storms or normal construction activities such as tire ruts or disturbance of swale stabilization shall be repaired as soon as practical.

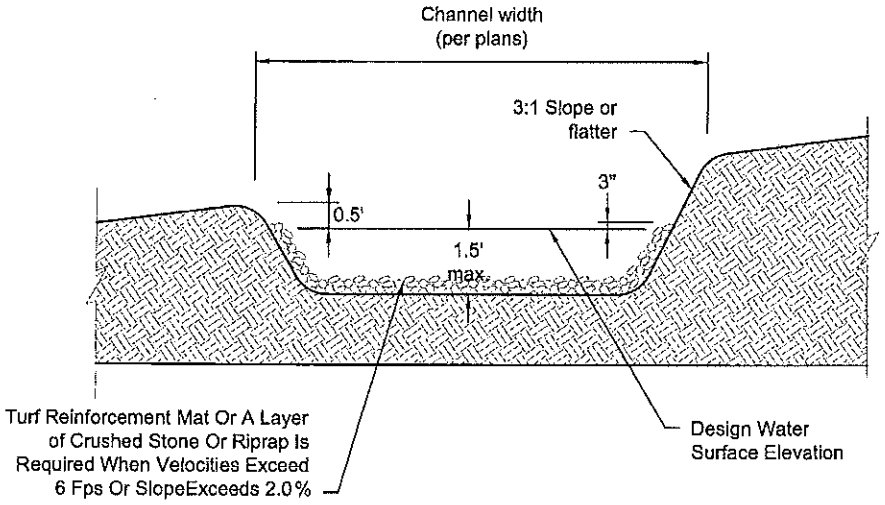
SPECIFICATIONS

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.6 Interceptor Swale.

Interceptor Swale



Plan View



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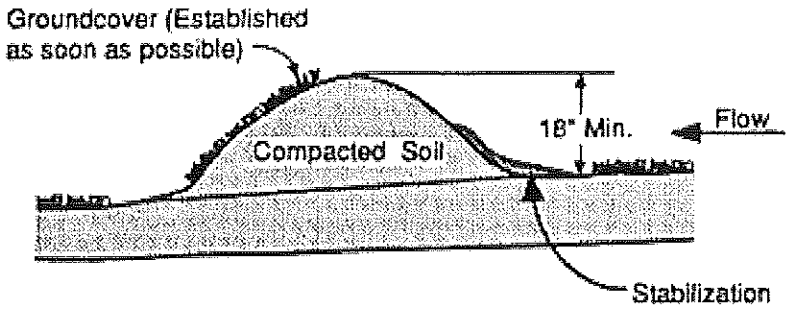
Diversion Dike



DESCRIPTION

A diversion dike is a compacted soil mound, which redirects runoff to a desired location. The dike is typically stabilized with natural grass for low velocities or with stone or erosion control mats for higher velocities.

PRIMARY USE

The diversion dike is normally used to intercept offsite flow upstream of the construction area and direct the flow around the disturbed soils. It can also be used downstream of the construction area to direct flow into a sediment reduction device such as a sediment basin or protected inlet. The diversion dike serves the same purpose as an interceptor swale and, based on the topography of the site, can be used in combination with an interceptor swale.

APPLICATIONS

By intercepting runoff before it has the chance to cause erosion, diversion dikes are very effective in reducing erosion at a reasonable cost. They are applicable to a large variety of projects including site developments and linear projects such as roadways and pipeline construction. Diversion dikes are normally used as perimeter controls for construction sites with large amounts of offsite flow from neighboring properties. Used in combination with swales, the diversion dike can be quickly installed with a minimum of equipment and cost, using the swale excavation material to construct the dike. No sediment removal technique is required if the dike is properly stabilized and the runoff is intercepted prior to crossing disturbed areas.

Significant savings in structural controls can be realized by using diversion dikes to direct sheet flow to a central area such as a sediment basin or other sediment reduction structure if the runoff crosses disturbed areas

DESIGN CRITERIA

- ❑ The maximum contributing drainage area should be 5 acres or less depending on site conditions.
- ❑ Maximum depth of flow at the dike shall be 1 foot based on a 2-year return period design storm peak flow.
- ❑ Side slopes of the diversion dike shall be 3:1 or flatter.
- ❑ Minimum width of the embankment at the top shall be 2 feet.
- ❑ Minimum embankment height shall be 18 inches as measured from the toe of slope on the upgrade side of the berm.

Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ● Floatable Materials
- ◒ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=1.00

E-2

North Central Texas Council of Governments

Diversion Dike

- For grades less than 2 percent and velocities less than 6 feet per second, the minimum required channel stabilization shall be grass, erosion control mats or mulching. For grades in excess of 2 percent or velocities exceeding 6 feet per second, stabilization is required in the form of turf reinforcement mats (or a layer of crushed stone or rip-rap with appropriate size, gradation, and thickness depending on flow conditions). Velocities greater than 8 feet per second will require approval by the local jurisdiction and is discouraged.
- The dikes shall remain in place until all disturbed areas, which are protected by the dike are permanently stabilized unless other controls are put into place to protect the disturbed area.
- The flow line at the dike shall have a positive grade to drain to a controlled outlet.
- Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment-trapping device.
- Soil used in construction of the dike can be on-site material. It should be free of rocks larger than three inches in diameter and should be clay, silty clay or sandy clay with a plasticity index greater than 25. If only low PI material is available, it will be necessary to armor the slopes with stone or geotextile to prevent erosion of the dike.

LIMITATIONS

Compacted earth dikes require stabilization immediately upon placement so as not to contribute to the problem they are addressing.

The diversion dikes can be a hindrance to construction equipment moving on the site; therefore their locations must be carefully planned prior to installation.

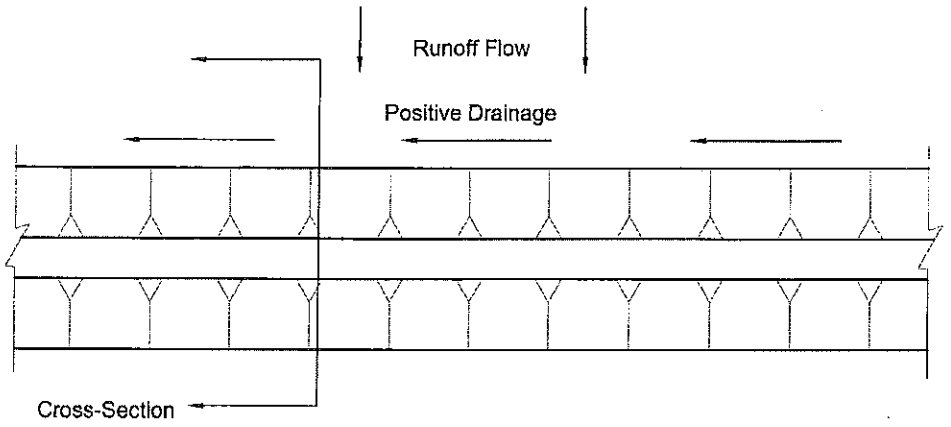
MAINTENANCE REQUIREMENTS

Dikes should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to determine if silt is building up behind the dike, or if erosion is occurring on the face of the dike. Silt shall be removed in a timely manner. If erosion is occurring on the face of the dike, the face of the slopes shall either be stabilized through mulch or seeding or the slopes shall be flattened.

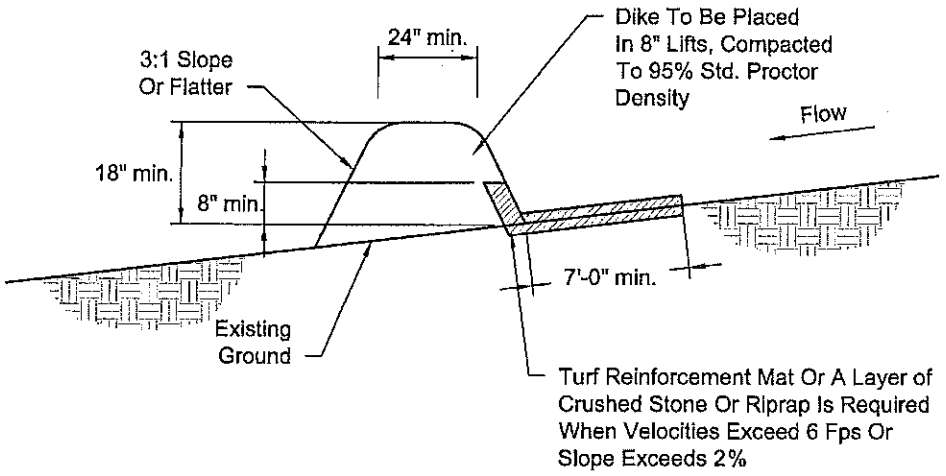
SPECIFICATIONS

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.7 Diversion Dike.

Diversion Dike



Plan View



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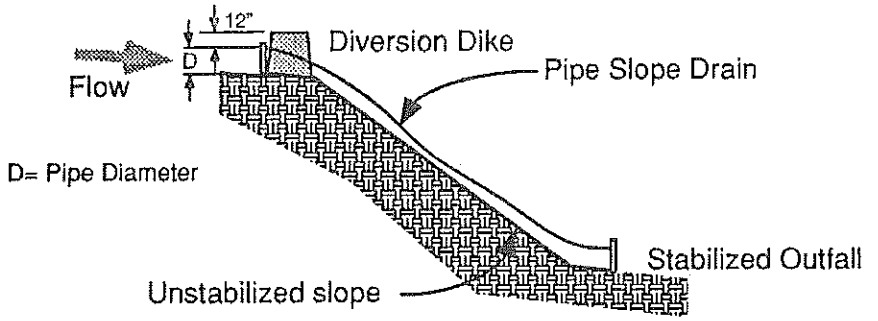
Pipe Slope Drain



Applications

- Perimeter Control
- **Slope Protection**
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A pipe slope drain is a temporary (or permanent) pipeline typically utilizing flexible pipe that conveys runoff down unstabilized slopes. The drain is anchored on the upstream end with some form of headwall to limit erosion and secure the pipe.

PRIMARY USE

Pipe slope drains are used to protect preliminary and final graded slopes during establishment of temporary and permanent ground covers. They are used on sites with a long, unstabilized, steep slope area that is subject to erosion from overland flow. They are normally used in combination with interceptor swales or diversion dikes to direct the flow into the pipe area. The pipe slope drain can provide service for a relatively large area. It does not treat the runoff, therefore if the runoff contains sediment, treatment through a controlled outlet will be required before the flow is released offsite.

APPLICATIONS

Sites with large berms or grade changes such as roadway embankments are candidates for a pipe slope drain. Since provisions must be made to direct the flow into the pipe drain, some grading is normally required upstream of the pipe slope drain. Installed properly, slope erosion can be greatly reduced (but not entirely eliminated) through the use of the drain.

Pipe slope drains also require a stabilized outlet. This is critical since the velocities at the outfall are normally high. Velocity dissipators such as stone or concrete rip-rap are typically required to reduce the velocity and spread the flow, reducing erosion. Flow from a pipe slope drain should be routed to a sediment reduction practice (BMP with S prefix) through interceptor swales, diversion dikes or other suitable methods.

DESIGN CRITERIA

- ☐ The entrance to the pipe slope drain may be a standard corrugated metal pre-fabricated flared end section with an integral toe plate extending a minimum of 6 inches from the bottom of the end section.
- ☐ The grade of the entrance shall be 3 percent maximum.
- ☐ The berm at the entrance shall have a minimum height of the pipe diameter + 12" and a minimum width of 3 times the pipe diameter.
- ☐ All sections of the pipe slope drain shall be connected using watertight collars or gasketed watertight fittings.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ● Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

E-3

North Central Texas Council of Governments

Pipe Slope Drain

- ❑ All sediment-laden runoff conveyed by the pipe slope drain shall be directed to a sediment trapping facility.
- ❑ The pipe shall be secured with hold down anchors spaced 10 feet on center.
- ❑ Temporary pipe slope drains are to be sized to accommodate runoff flows equivalent to a 10-year storm as calculated using the Rational Method and Manning's equation, but in no case shall pipes be sized smaller than shown on the following table:

Minimum Pipe Size	Maximum Contributing Drainage Area
12"	0.5 Acres
18"	1.5 Acres
21"	2.5 Acres
24"	3.5 Acres
30"	5.0 Acres

- ❑ Maximum drainage areas for individual pipe slope drains shall be 5 acres. For areas larger than 5 acres, additional drains shall be added.
- ❑ Both the entrance and outfall of the pipe slope drain should be properly stabilized. Grass can normally be used at the entrance, but armor type stabilization such as stone or concrete riprap is normally required to address the high velocities of the outfall.
- ❑ A riprap lined apron shall be excavated to accept the discharge from the pipe and dissipate the energy of the flow. The width of the bottom of the apron shall be 3 times the pipe diameter, and the length shall be a minimum of 6 times the pipe diameter of the drain pipe. The apron shall be a minimum of 12 inches in depth and shall be lined with riprap weighing between 50 and 150 pounds per stone at a thickness of 12 inches minimum. The apron shall be designed so that the released flow has a velocity less than 3 feet per second.

LIMITATIONS

- ❑ Drains must be located away from construction areas since the drain can easily be damaged by construction traffic.
- ❑ Grading is normally required upstream of the pipe slope drain in order to direct flow into the system. This can cause additional cost and maintenance. Securing the pipe to the slope can be difficult and require significant maintenance during the life of the system.
- ❑ In situations where pipe slope drains convey sediment-laden runoff, pipes can become clogged during large rain events causing water to overtop the diversion dike thereby creating a serious erosion condition.
- ❑ A pipe slope drain reduces erosion but does not prevent it or reduce the amount of sediment in runoff. Additional measures should be used in conjunction with the pipe slope drain to treat the flow.

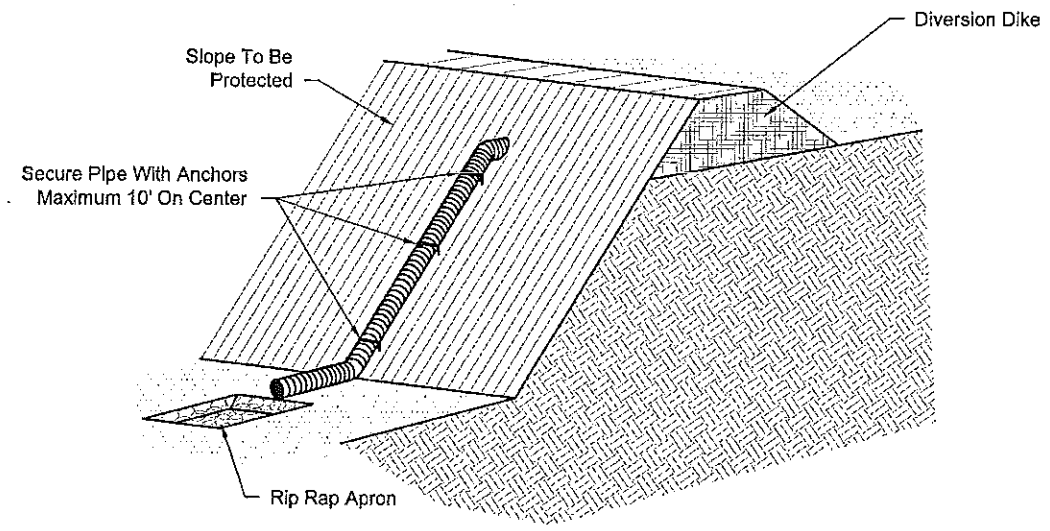
MAINTENANCE REQUIREMENTS

Pipe slope drains should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to locate and repair any damage to joints or clogging of the pipe. In cases where the diversion dike has deteriorated around the entrance of the pipe, it may be necessary to reinforce the dike with sandbags or to install a concrete collar to prevent failure. Signs of erosion around the pipe drain should be addressed in a timely manner by stabilizing the area with erosion control mats, crushed stone, concrete, or other acceptable methods.

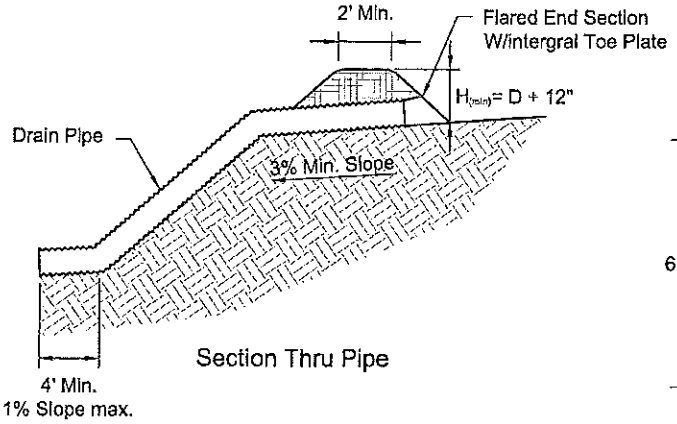
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.14 Pipe Slope Drain.

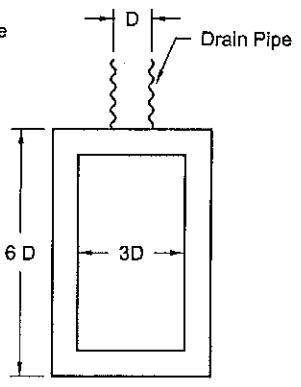
Pipe Slope Drain



Isometric Plan View



Section Thru Pipe



Riprap Apron Plan View

Riprap shall consist of 50 to 150 pound stones placed in a layer of not less than 12 inches. The depth of the apron shall equal the pipe diameter but in no case shall it be less than 12 inches.

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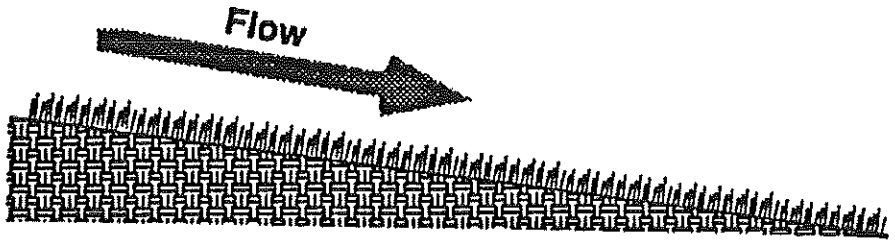
Vegetation



Applications

- Perimeter Control
- **Slope Protection**
- Sediment Trapping
- **Channel Protection**
- **Temporary Stabilization**
- **Permanent Stabilization**
- Waste Management
- Housekeeping Practices

DESCRIPTION

Vegetation, as a Best Management Practice, is the sowing or sodding of annual grasses, small grains, or legumes to provide interim and permanent vegetative stabilization for disturbed areas.

PRIMARY USE

Vegetation is used as a temporary or permanent stabilization technique for areas disturbed by construction. As a temporary control, vegetation is used to stabilize stockpiles and barren areas that are inactive for long periods of time. As a permanent control, grasses and other vegetation provide good protection from erosion along with some filtering for overland runoff. Subjected to acceptable runoff velocities, vegetation can provide a positive method of permanent storm water management as well as a visual amenity to the site.

Other BMPs may be required to assist during the establishment of vegetation. These other techniques include erosion control matting, swales, and dikes to direct flow around newly seeded areas and proper grading to limit runoff velocities during construction.

APPLICATIONS

Vegetation effectively reduces erosion in swales, stockpiles, berms, mild to medium slopes, and along roadways. Vegetative strips can provide some protection when used as a perimeter control for utility and site development construction.

In many cases, the initial cost of temporary seeding may be high compared to tarps or covers for stockpiles or other barren areas subject to erosion. This initial cost should be weighed with the amount of time the area is to remain inactive, since maintenance cost for vegetated areas is much less than most structural controls.

DESIGN CRITERIA

Surface Preparation

- ☐ Interim or final grading must be completed prior to seeding or sodding.
- ☐ Install all necessary erosion structures such as dikes, swales, diversions, etc. prior to seeding or sodding.
- ☐ When establishing vegetation from seed, groove or furrow slopes steeper than 3:1 on the contour line before seeding.

Targeted Constituents

- ● Sediment
- ◒ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

E-4

North Central Texas Council of Governments

Vegetation

- ❑ Provide 4-6 inches of topsoil over rock, gravel or otherwise unsuitable soils. Poor quality topsoil should be amended with compost before applying seed or sod. Amendment should be three parts of topsoil to one part compost by volume thoroughly blended.
- ❑ Seed bed should be well pulverized, loose and uniform.

Plant Selection, Fertilization and Seeding

- ❑ Use only high quality, USDA certified seed.
- ❑ Use an appropriate species or species mixture adapted to local climate, soil conditions and season as shown below, or consult with the local office of the Natural Resource Conservation Service (NRCS) or Engineering Extension service as necessary for selection of proper species and application technique in this area.
- ❑ Seeding rate should be in accordance with the table below or as recommended by the NRCS or Engineering Extension service.
- ❑ Fertilizer shall be applied according to the manufacturer's recommendation with proper spreader equipment. Typical application rate for 10-10-10 grade fertilizer is 10 lbs. per 1,000 ft^2.
- ❑ If hydro-seeding is used, do not mix seed and fertilizer more than 30 minutes before application.
- ❑ Evenly apply seed using cyclone seeder, seed drill, cultipacker, terraseeding, or hydroseeder.
- ❑ Provide adequate water to aid in establishment of vegetation.
- ❑ Use appropriate mulching techniques where necessary, especially during cold periods of the year.

Sodding

- ❑ Sod shall be St. Augustine grass, common bermudagrass, buffalograss, an approved hybrid of common Bermudagrass or an approved zoysiagrass.
- ❑ The sod should be mowed prior to sod cutting so that the height of the grass shall not exceed 2-inches and should not be harvested or planted when its moisture condition is so excessively wet or dry that its survival shall be affected.
- ❑ Sod shall be planted within 3-days after it is excavated.
- ❑ In areas subject to direct sunlight, pre-moisten prepared sod bed by watering immediately prior to placing sod.
- ❑ Sodded areas shall be thoroughly watered immediately after they are planted.

ADDITIONAL GUIDANCE

- ❑ Establishing a good vegetative cover is dependent of the season of the year. Projects that commence in the fall of the year may not be candidates for vegetation used as a BMP.
- ❑ Where vegetation is used in swales and channels it may be necessary to use sod, rather than seeding, to establish an erosion resistant surface to accommodate rainfall runoff flows.
- ❑ Where vegetation is used for perimeter control, the use of sod is necessary for a fifteen-foot width.
- ❑ Mulch should be used to enhance vegetative growth, in that mulch protects seeds from heat, prevents soil moisture loss, and provides erosion protection until the vegetation is established.
- ❑ Fertilizers have both beneficial and adverse effects. Fertilizers provide nutrients to the vegetation, but also fertilizers are a source of nutrients to streams and lakes. In this latter regard they are a pollutant. The use of native vegetation rather than exotics reduces the need of fertilizer. Organic fertilizers are generally preferred over chemical fertilizers from the standpoint of environmental conditions.
- ❑ Steep slopes represent a problem for establishing vegetation. Bonded Fiber Matrix or Mechanically Bonded Fiber Matrix products applied with a tackifier are useful for establishing vegetation on slopes.

TEMPORARY VEGETATION

The table on the following page lists recommended plant species for the North Central Texas region depending on the season for planting.

Vegetation

RECOMMENDED GRASS MIXTURE FOR TEMPORARY EROSION CONTROL:

SEASON	COMMON NAME	RATE (LBS/ACRE)
Aug 15 - Nov 30	Tall Fescue Western Wheat Grass Wheat (Red, Winter)	4.0 5.0 30.0
May 1 - Aug 31	Foxtail Millet	30.0
Feb 15 – May 31 Sep 1 – Dec 31	Annual Rye	20.0

PERMANENT VEGETATION

Grass seed for permanent vegetation can be sown at the same time as seeding for temporary (annual) vegetation. Drought tolerant native vegetation is recommended rather than exotics as a long-term water conservation measure. Native grasses can be planted as seed or placed as sod. Buffaloe 609, for example, is a hybrid grass that is placed as sod. Fertilizers are not normally used to establish native grasses, but mulching is effective in retaining soil moisture for the native plants.

RECOMMENDED NATIVE GRASSES FOR PERMANENT EROSION CONTROL

GRASS		RATE
Buffaloe Grass	Full Turf Application	3-4 lbs/1000 sqft
Blue Grama	Full Turf Application	2 lbs/1000 sqft
Side Oats Grama	Applied with other native seed	¼ lb/1000 sqft

LIMITATIONS

Vegetation is not appropriate for areas subjected to heavy pedestrian or vehicular traffic. As a temporary technique, vegetation may be costly when compared to other techniques. Vegetation may require a period of days to weeks before becoming established. Lack of water and lack of or improper use of soil amendments (compost, fertilizer, etc.) will usually result in poor turf establishment. Alternate erosion control (e.g. mulching, sodding vegetative strips, etc) should be used until vegetation can be established.

Vegetation is not appropriate for rock, gravel or coarse-grained soils unless 4 to 6 inches of topsoil is applied.

MAINTENANCE REQUIREMENTS

Protect newly seeded areas from excessive runoff and traffic until vegetation is established. A watering and fertilizing schedule will be required as part of the SWPPP to assist in the establishment of the vegetation. Vegetation should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to ensure that the plant material is established properly and remains healthy. Bare spots shall be reseeded and/or protected from erosion by mulch or other BMP. Accumulated sediment deposited by runoff should be removed to prevent smothering of the vegetation. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

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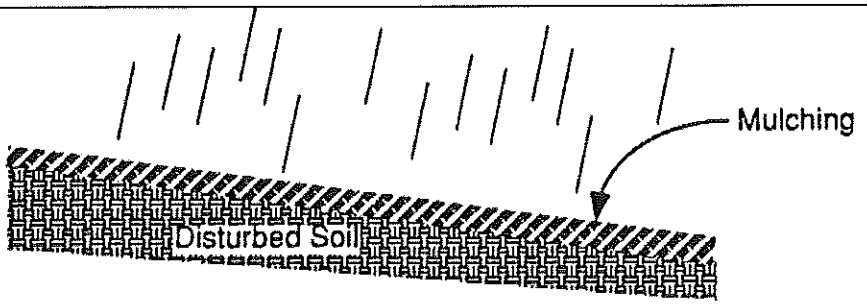
Mulching



Applications

- Perimeter Control
- **Slope Protection**
- Sediment Trapping
- Channel Protection
- **Temporary Stabilization**
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

E-5

North Central Texas Council of Governments

DESCRIPTION

Mulching is the application of a layer of chopped straw, hay, chipped site vegetation, or other material, which is spread uniformly over barren areas to reduce the effects of erosion from rainfall. Types of mulch include organic materials (e.g. compost mixtures), straw, wood chips, bark, or other fibers. Another form of mulch, which has been commercialized, uses straw or other material with organic and inorganic binding systems which are typically sprayed over the control area. Some of these products may be very effective on steeper slopes where there is no vehicular or foot traffic to disrupt the application until vegetation is established. Mulch should not contain chipped manufactured boards or chemically treated wood such as particleboard, railroad ties or similar treated wood. Hay should not be used as a replacement for straw unless it can be determined that it is weed and seed free.

PRIMARY USE

Mulch is used to temporarily and/or permanently stabilize bare or freshly seeded areas. It protects the soil from erosion and moisture loss by lessening the effects of wind, water, and sunlight. It also decreases the velocity of sheet flow, thereby reducing the volume of sediment-laden water flow leaving the mulched area.

APPLICATIONS

Mulch may be used on most construction-related disturbed area for surface protection including:

- ❑ Freshly seeded or planted areas,
- ❑ Areas at risk due to the time period being unsuitable for growing vegetation,
- ❑ Areas that are not conducive to seeding or planting.
- ❑ Steep slopes (e.g. >3H:1V), provided the mulch is anchored to the soil by use of a combination of tackifiers and netting, or crimping.

DESIGN CRITERIA

Mulch may be used by itself or in combination with netting or other anchors to promote soil stabilization.

- ❑ Choice of mulch depends largely on slope, climate, and soil type in addition to availability of materials.
- ❑ Mulch should be applied in an even and uniform manner where concentrated water flow is negligible.
- ❑ The application of straw mulch should be approximately 2 tons dry straw per acre spread uniformly across the area. Other forms of mulch, such as wood chips or chopped site vegetation, should be placed in thicknesses of two-inches or greater over the area.

Mulching

- Straw mulch should be anchored by application of a fiber mulch binder, by the application of a synthetic liquid mulch binder, by using a tractor-drawn crimper to punch into the soil, or by placing a netting above the mulch stapled to the ground, as required.
- Mulch hydraulically applied with tackifiers and binding agents is commercially available as a bonded fiber matrix (BFM) which may be particularly effective on slopes steeper than 2.5:1.
- Wood chips are suitable for areas that will not require mowing frequently and are heavy enough that they do not require anchoring. They do, however, deplete nitrogen from the soil, which is a necessary nutrient for all plants. To alleviate this condition, wood chips must be treated with 12 pounds of ammonium nitrate per ton of mulch used.
- Bark chips are popular for ornamental applications, as they do not require anchoring, do not decompose very rapidly, and serve as an excellent insulation material. When using bark chips, it is not necessary to treat for nitrogen deficiency or to fertilize.
- Compost and wood mulch mixtures should be a blend of 50% untreated wood mulch with 50% compost measured by volume. Wood mulch should be less than or equal to 5 in. in length with 95% passing a 2-in. screen and less than 30% passing a 1-in. screen. The compost shall meet the Physical Requirements specified in Table 1 of TxDOT Special Specification 1058, Compost, which can be found in Appendix F.
- Prior to the placement of any mulch, the area to be protected must be graded in accordance with plans.
- Fertilization and soil treatment should then be done prior to placement of mulch with the exceptions of when seed is to be applied by means of hydro-seed or when seed is distributed following straw mulch spreading during winter months.
- Organic mulches may be distributed by hand or my mechanical means, but to be effective a complete covering is required.
- Refer to the table on the following page for additional guidance.

LIMITATIONS

Mulches are subject to removal by wind or water under severe climatic conditions.

Mulches lower the soil temperature, which may result in longer seed germination periods.

Mulch should not be applied within the ordinary high-water mark of surface waters, as it can be a potential floatation material.

MAINTENANCE REQUIREMENTS

Mulched areas should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for thin or bare spots caused by natural decomposition or weather related events. Mulch in high traffic areas should be replaced on a regular basis to maintain uniform protection. Excess mulch should be brought to the site and stockpiled for use during the maintenance period to dress problem spots.

SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.17 Mulching.

Mulching

Mulch Standards and Guidelines			
Mulch Material	**Quality Standards**	**Application Rates**	**Remarks**
Straw	Air-dried, free from undesirable seed and from coarse material.	2"-3" thick, Approx 2 tons per acre.	Cost-effective when applied with adequate thickness. Hay can be used if weed and seed free. In windy areas and on steep slopes, straw must be held in place by crimping, using a tackifier, or covering with netting.
Chipped Site Vegetation	Should include gradation from fine to coarse to promote interlocking properties. Maximum size 6 inches in length.	2" minimum thickness over area; approx. 10 tons per acre.	Cost-effective manner of disposing of vegetative debris from site. Do not place in areas subject to flooding. Decomposition of chipped vegetation competes with nutrients important to subsequent grass establishment. Mulch must be free of waste materials such as plastic bag, metal debris, etc.
Wood Mulch and Compost Mixture	Compost shall meet the Physical Requirements (Table 1) of Appendix F.	2" minimum thickness over area; approx. 10 tons per acre.	Special caution is advised regarding the source and composition of wood mulches. Determine whether the preparation include weed seed control. Wood mulches are an excellent soil amendment, ultimately improving the organic content of the soil.
Hydromulch	No growth inhibiting factors.	Approx 25-30 lbs per 1000 sf or 1500-2000 lbs per acre.	Apply with a hydromulcher. Fibers should be kept to less than ¾ inch to prevent clogging equipment. Best used in conjunction with seed at time of application.
Bonded Fiber Matrix	Hydraulically applied mulch with tackifiers and binding agents.	Follow the manufacturer's recommendations. (typically 3000 lbs per acre or greater).	Bonded fiber matrix may be particularly effective on slopes steeper than 2.5:1.

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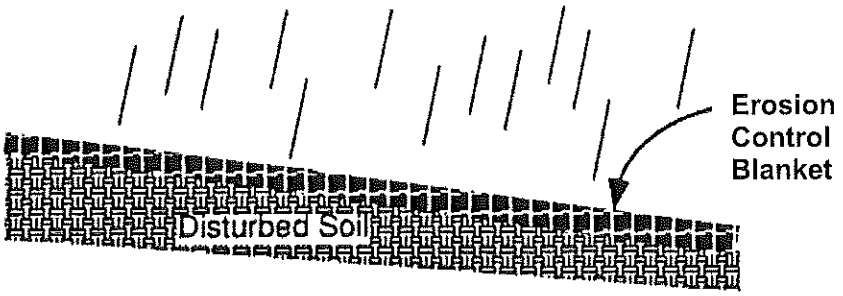
Erosion Control Blankets



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

An erosion control blanket (ECB) is a temporary degradable erosion prevention product placed over disturbed areas to limit the effects of erosion due to rainfall impact and runoff across barren soil. Erosion control blankets are manufactured by a wide variety of vendors addressing a wide variety of conditions such as slope and functional longevity. Blankets are typically constructed of natural materials such as coir (coconut husk) fibers, excelsior (wood) or straw covered on both sides by degradable synthetic netting.

PRIMARY USE

Erosion control blankets are designed to hold seed and soil in place until vegetation is established on disturbed areas. They can be used on any disturbed areas, but are particularly effective for slopes and embankments. When used in combination with sediment trapping BMPs such as silt fence or wattles, blankets may be used as a perimeter control with or without vegetation.

DESIGN CRITERIA

- ❑ The type and class of erosion control mat must be specified as appropriate for the slope of the area to be protected and the anticipated length of service.
- ❑ ECBs should meet the applicable "Minimum Performance Standards for TxDOT" as published by TxDOT in its "Erosion Control Report" and/or be listed on the most current annual "Approved Products List for TxDOT" applicable to TxDOT Item 169 Soil Retention Blanket and its Special Provisions.
- ❑ Prior to the installation of any erosion control matting, all rocks, dirt clods, stumps, roots, trash and any other obstructions that would prevent the mat from lying in direct contact with the soil shall be removed. Anchor trenching shall be located along the entire perimeter of the installation area, except for small areas with less than 2% slope.
- ❑ Installation and anchoring shall conform to the recommendations shown within the manufacturer's published literature for the approved erosion control blanket. Particular attention must be paid to joints and overlapping material.
- ❑ After appropriate installation, the blankets should be checked for uniform contact with the soil; security of the lap joints, and flushness of the staples with the ground.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ◒ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

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North Central Texas Council of Governments

Erosion Control Blankets

LIMITATIONS

Care must be exercised in specifying the proper Erosion Control Blanket product for the intended application.

For application requiring a permanent erosion control product, or for stabilizing slopes greater than 2H:1V or lining open conveyance channels, Turf Reinforcement Mats should be utilized.

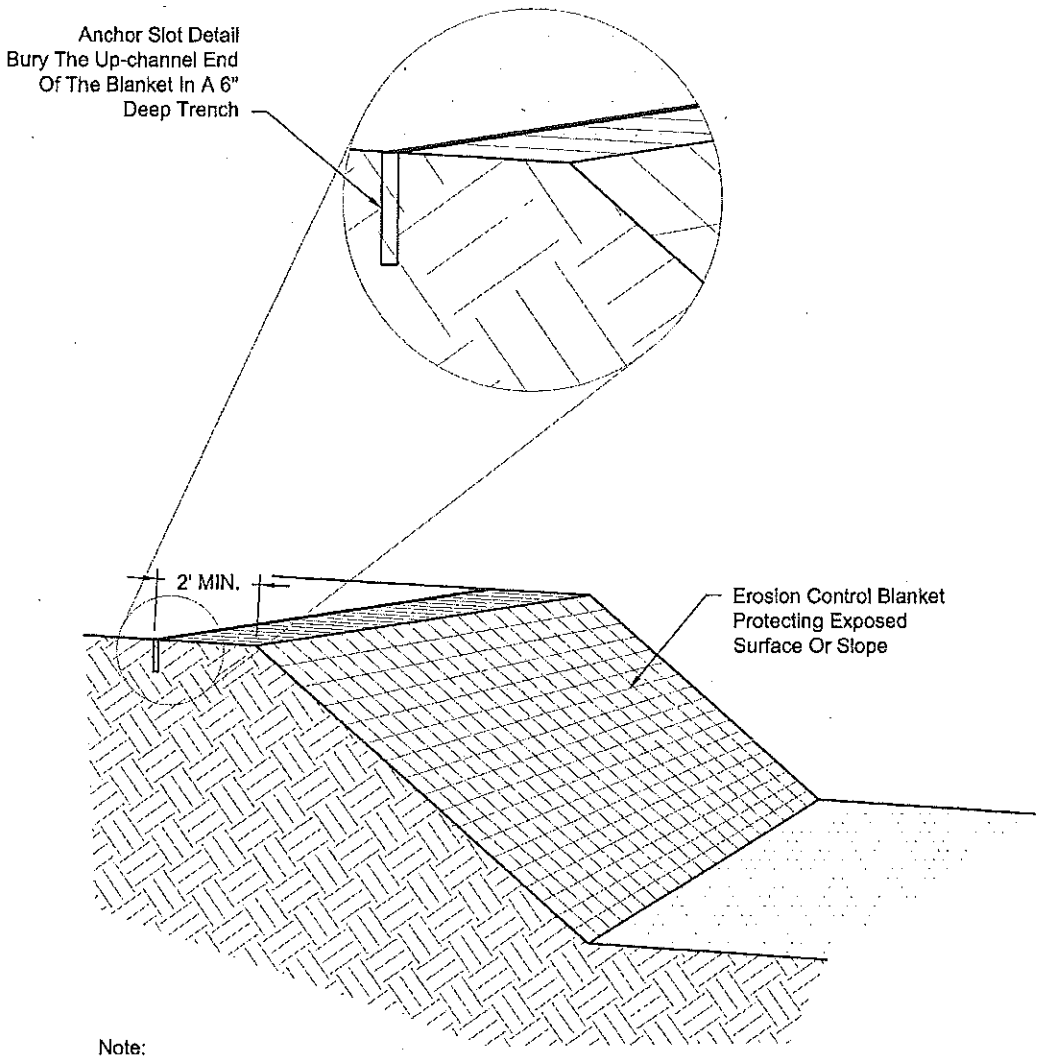
MAINTENANCE REQUIREMENTS

Erosion Control Blankets should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for bare spots caused by weather related events. Missing or loosened blankets must be replaced or re-anchored. Also check for excess sediment deposited from runoff. Remove sediment and/or replace blanket as necessary. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

SPECIFICATIONS

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.16 Erosion Control Blankets.

Erosion Control Blankets



Note:
Anchoring of the Erosion Control Blankets Shall Be
Done In Accordance With the Manufacturer's Recommendations.

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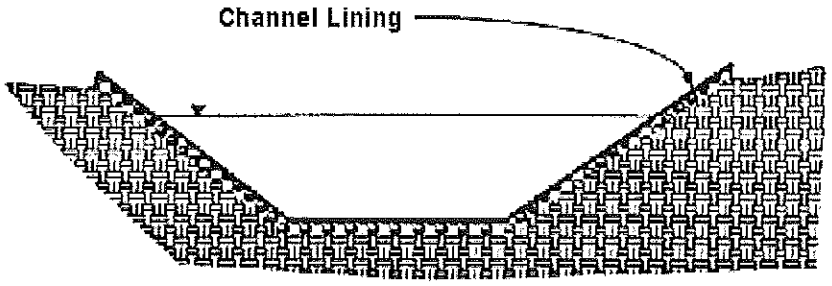
Channel Protection



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

Channel protection includes a variety of erosion prevention techniques including vegetation, turf reinforcement mats, and riprap. Channel protection is required to protect the sides and bottom of open channels from erosion caused by storm water flows.

PRIMARY USE

The information presented in this Fact Sheet primarily addresses protection of temporary channels constructed to convey storm water runoff on a property under development. Grass-lining should be adequate for most temporary channels, although some situations may require additional protection provided by turf reinforcement mats or riprap.

There are separate requirements for design of permanent open channels in the iSWM Design Manual for Development/Redevelopment and/or local drainage manual; however, permanent channels must also be protected from erosion during the construction phase.

APPLICATIONS

Channel protection for constructed open channels conveying concentrated storm water runoff. Examples include:

- ❑ discharge from diversion dikes or interceptor swales;
- ❑ flows to and discharges from sediment traps or basins;
- ❑ roadside drainage channels;
- ❑ conveyances in low areas.

This Fact Sheet does not apply to alterations of natural channels. Contact the local jurisdiction and/or the Corps of Engineers, Fort Worth District Office for information on regulatory requirements.

DESIGN CRITERIA

Temporary Channel Design

- ❑ All temporary channels shall be designed to carry the peak runoff for the 10-year design storm without eroding. Permanent channels must be designed in accordance with the iSWM Design Manual for Development/Redevelopment (and/or local requirements).
- ❑ Channels may be trapezoidal, parabolic, or v-shaped; however v-shaped channels may be difficult to stabilize, so they are generally used only where the volume and rate of flow is low.
- ❑ Side slopes shall be 3:1 or flatter to aid in the establishment of vegetation and/or for maintenance.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

E-7

North Central Texas Council of Governments

Channel Protection

Grass-Lining

- ❑ Grass-lining is appropriate for grades less than 2 percent and velocities less than 6 feet per second.
- ❑ If the design velocity of a channel to be vegetated by seeding exceeds 2 feet per second, Erosion Control Blankets (Fact Sheet E-6) must be used to provide protection and assist in establishing the vegetation.
- ❑ Refer to the Fact Sheet E-4, Vegetation, for appropriate vegetation types and information on establishment of vegetation. In addition, consult manufacturer's literature where erosion control blankets are used.

Turf Reinforcement Mat Lining

- ❑ Turf reinforcement mats (TRMs) provide long-term erosion protection in channels where flow conditions exceed the ability of vegetation alone to withstand erosive forces (grades in excess of 2 percent or velocities exceeding 6 feet per second).
- ❑ Turf reinforcement mats may provide channel protection for conditions of up to approximately 8 lbs/ft^2 sheer stress. The appropriate TRM product must be selected in accordance with the manufacturer's specifications to meet the design flow conditions.
- ❑ Turf reinforcement mats are generally preferred over stone stabilization.
- ❑ TRM installation and anchoring shall conform to the recommendations shown within the manufacturer's published literature.
- ❑ Refer to the Fact Sheet E-4, Vegetation, for appropriate vegetation types and information on establishment of vegetation. In addition, consult the TRM manufacturer's literature for special considerations.

Crushed Stone and Riprap

- ❑ As an alternate to turf reinforcement mats, a layer of crushed stone or rip-rap with appropriate size, gradation, and thickness depending on flow conditions may also be used for grades in excess of 2 percent or velocities exceeding 6 feet per second.
- ❑ The size and gradation of the stone or riprap and thickness of the lining must be designed appropriately for the flow conditions to prevent the lining from washing away.
- ❑ Riprap should be placed on a lining of geotextile fabric to prevent soil movement into or through the riprap. The geotextile must be keyed in at the top of the bank.

LIMITATIONS

The vegetation for grass-lined channels may be difficult to establish unless the seedbed is protected from high flows until the seed germinates and matures.

MAINTENANCE REQUIREMENTS

Channel protection measures should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for signs of bare spots, erosion, or excessive sediment deposition. Bare spots or areas experiencing erosion should be repaired immediately by replacing lining material. Where excessive sediment is discovered, remove sediment and repair lining as necessary. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion.

While vegetation is being established for grass-lining and turf reinforcement mats, check frequently to ensure proper growing conditions and adequate coverage. Also, remove any accumulated sediment in the channel bottom frequently to prevent damage to the vegetation.

SPECIFICATIONS

No specification for construction of temporary channel protection is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Dust Control

DESCRIPTION
Dust control includes those measures necessary to prevent wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.

PRIMARY USE
Dust control is applied in areas (including roadways) subject to surface and air movement to dust where on-site and off-site impacts to roadways, drainage ways, or surface waters are likely.

DESIGN CRITERIA
- ❑ Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.
- ❑ Limit dust generation by clearing only those areas where immediate activity will take place, leaving the remaining area(s) in the original condition, if stable. Maintain the original cover as long as practicable.
- ❑ Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- ❑ Sprinkle the site with water until dampened sufficiently to prevent dust and repeat as needed. Do not apply water in quantities to cause runoff.
- ❑ Irrigation water can be used for dust control. Irrigation systems should be installed as a first step on sites where dust control is a concern.

SPECIFICATIONS
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Applications

Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents

- ● Sediment
- ○ Nutrients/Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ○ Capital Costs
- ○ Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

E-8

North Central Texas Council of Governments

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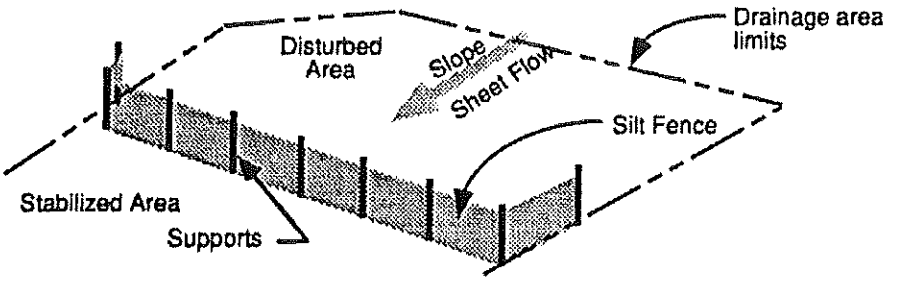
Silt Fence



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between either wooden or metal posts with the lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

PRIMARY USE

Silt fence is normally used as perimeter control located downstream of disturbed areas. It is only feasible for non-concentrated, sheet flow conditions. If it becomes necessary to place a silt fence where concentrated flows may be experienced (e.g. where two silt fences join at an angle, or across minor channels or gullies), it will be necessary to reinforce the silt fence at that area by a rock berm or sand bag berm, or other structural measures that will support the silt fence.

APPLICATIONS

Silt fence is an economical means to treat overland, non-concentrated flows for all types of projects. Silt fences are used as perimeter control devices for both site developers and linear (roadway) type projects. They are most effective with coarse to silty soil types. Due to the potential of clogging and limited effectiveness, silt fences should be used with caution in areas that have predominantly clay soil types. In this latter instance a soils engineer or soil scientist should confirm the suitability of silt fence for that application

DESIGN CRITERIA

- ❑ Fences are to be constructed along a line of constant elevation (along a contour line) where possible.
- ❑ Maximum drainage area shall be 0.25 acre per 100 linear feet of silt fence.
- ❑ Maximum flow to any 20 foot section of silt fence shall be 1 CFS.
- ❑ Maximum distance of flow to silt fence shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ❑ Maximum slope adjacent to the fence shall be 2:1.
- ❑ If 50% or less soil, by weight, passes the U.S. Standard sieve No. 200; select the apparent opening size (A.O.S.) to retain 85% of the soil.
- ❑ If 85% or more of soil by weight, passes the U.S. Standard sieve No. 200, silt fences shall not be used unless the soil mass is evaluated and deemed suitable by a soil scientist or geotechnical engineer concerning the erodiblity of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S-1

North Central Texas Council of Governments

Silt Fence

- ❑ Stone overflow structures or other outlet control devices shall be installed at all low points along the fence or spaced at approximately 300 feet if there is no apparent low point.
- ❑ Filter stone for overflow structure shall be 1-1/2" washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- ❑ Silt fence fabric must meet the following minimum criteria:
  - o Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 90-lbs.
  - o Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 60-lbs.
  - o Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 280-psi.
  - o Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 70 (max) to No. 100 (min)
  - o Ultraviolet Resistance, ASTM D4355. Minimum 70 percent.
- ❑ Fence posts shall be galvanized steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum. Wood Posts may be used depending on anticipated length of service and provided they are 4 feet in length minimum and have a nominal cross section of 2 inches by 4 inches for pine or 2 inches by 2 inches for hardwoods.
- ❑ Silt fence shall be supported by galvanized steel wire fence fabric as follows:
  - o 4" x 4" mesh size, W1.4 /1.4, minimum 14-gauge wire fence fabric;
  - o Hog wire, 12 gauge wire, small openings installed at bottom of silt fence;
  - o Standard 2" x 2" chain link fence fabric; or
  - o Other welded or woven steel fabrics consisting of equal or smaller spacing as that listed herein and appropriate gauge wire to provide support.
- ❑ A 6-inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel to prevent bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3 feet and shall be joined such that no leakage or bypass occurs.
- ❑ Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence.
- ❑ The ends of the fence shall be turned upstream to prevent bypass of storm water.

LIMITATIONS

Minor ponding will likely occur at the upstream side of the silt fence, which could result in minor localized flooding. Silt fences are not intended for use as check dams in swales or low areas subject to concentrated flow. Silt fences shall not be used where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches.

Silt fence can interfere with construction operations; therefore planning of access routes onto the site is critical. Silt fence can fail structurally under heavy storm flows, creating maintenance problems and reducing the effectiveness of the system.

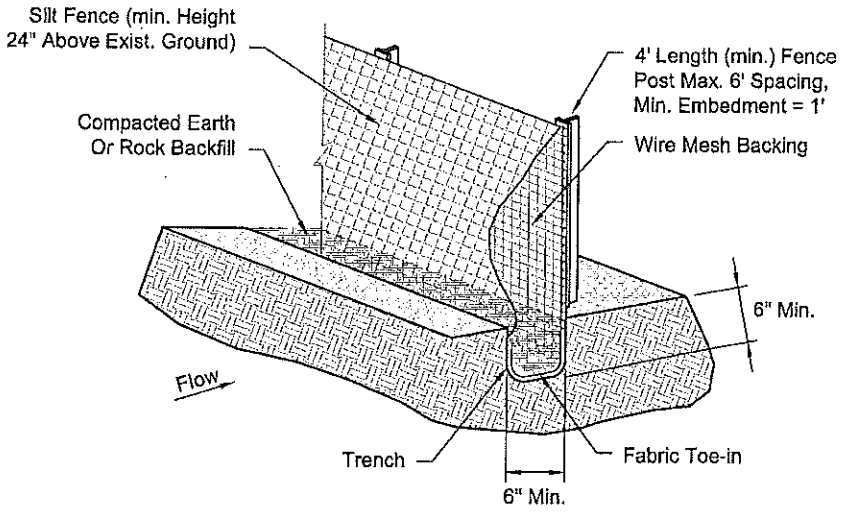
MAINTENANCE REQUIREMENTS

Silt fence should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for buildup of excess sediment, undercutting, sags, and other failures. Sediment should be removed when it reaches approximately one-half the height of the fence. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion. If the fabric becomes damaged or clogged, it should be repaired or replaced as necessary.

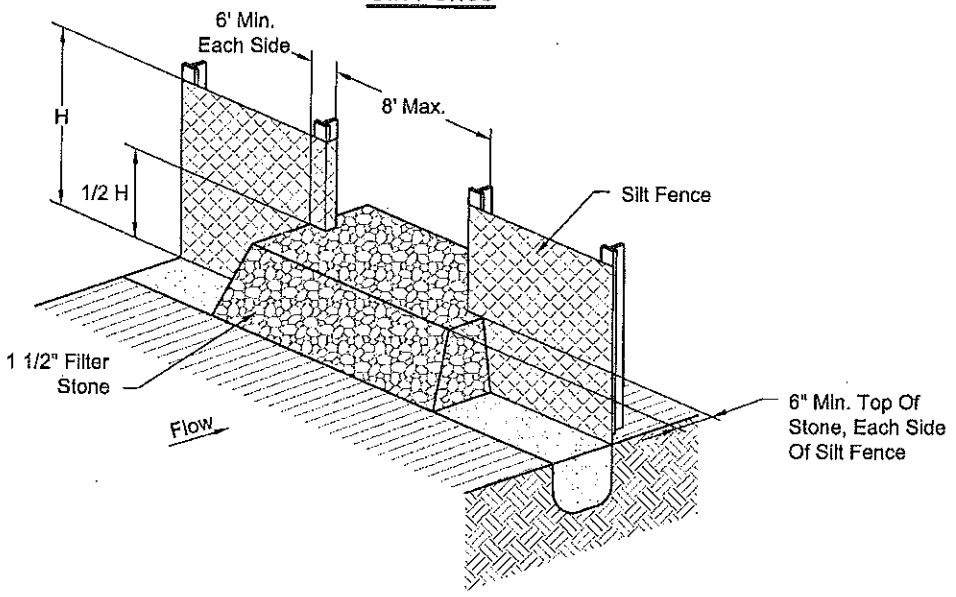
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.5 Silt Fence.

Silt Fence & Stone Overflow Structure



Silt Fence



Stone Overflow Structure

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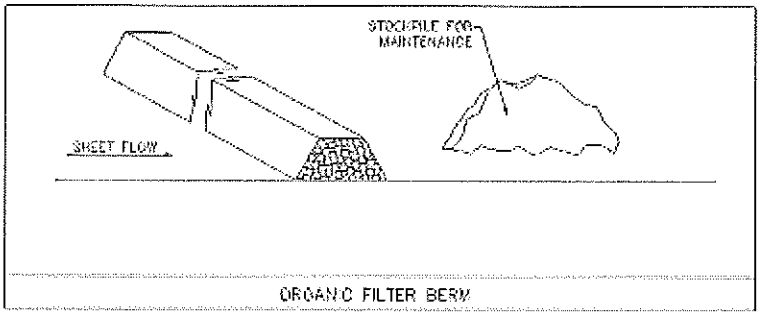
Organic Filter Berm



ORGANIC FILTER BERM

Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

Organic filter berms are linear berms constructed of a mix of compost and mulch and placed on a contour to control runoff and filter sediment. The organic filter berm provides both filtration and time for sediment settling by reducing the velocity of the runoff.

PRIMARY USE

Organic filter berms are very well suited to sites with small disturbed drainage areas that are not subjected to concentrated flows and that will ultimately be seeded, sodded, or landscaped.

APPLICATIONS

Properly designed, the organic filter berm is economical due to the ease of emplacement and because it can be tilled into the soil at the end of project, limiting the cost of removal and adding to the organic content of the soil. The berms are used as perimeter control devices for both development sites and linear (roadway) type projects. They are most effective with coarse to silty soil types.

DESIGN CRITERIA

- ❑ Filter berms are to be constructed along a line of constant elevation (along a contour line) where possible.
- ❑ Maximum drainage area shall be 0.25 acre per 100 linear feet of filter berm.
- ❑ Maximum flow to any 20 foot section of filter berm shall be 1 CFS.
- ❑ Maximum distance of flow to berm shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ❑ Maximum slope adjacent to the filter berm shall be 2:1.
- ❑ Trapezoidal shaped berms should be 1-1/2 to 3 feet high with a top width of 2 to 3 feet and a base of 3 to 5 feet wide.
- ❑ Windrow (triangular) shaped berms should be 1 to 2 feet high and 2 to 4 feet wide.
- ❑ Organic filter berms shall be constructed of a mixture of 50% compost and 50% wood mulch. The compost shall meet the Physical Requirements specified in Table 1 of TxDOT Special Specification 1058, Compost, which can be found in Appendix F. Mulch shall be untreated wood chips less than or equal to 5 inches in length with 95% passing a 2-inch screen and less than 30% passing a 1-inch screen.
- ❑ Organic filter berms may be seeded with a seed loading of 1 lb. per 10 linear feet for small berms (1ft. by 2 ft.) or 2.25 lbs per 10 linear ft. for larger berms (1.5 ft. by 3 ft.)

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S-2

North Central Texas Council of Governments

Organic Filter Berm

LIMITATIONS

Minor ponding will likely occur at the upstream side of the organic filter berm that could result in minor localized flooding.

Berms should not be constructed in swales or low areas since they will be subject to concentrated flow and may be overtopped resulting in failure of the filter berm.

Berms can interfere with construction operations; therefore planning of access routes onto the site is critical. Typically excess material is stockpiled on site for repairs to berms disturbed by construction activity.

MAINTENANCE REQUIREMENTS

Filter berms should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for buildup of excess sediment, undercutting, and other failures. Silt must be removed when it reaches ½ the height of the berm. Silt may be raked from the disturbed side of the device to clean side the berm for the first few times that it becomes clogged to prevent ponding. Repeated clogging of the berm at one location will require replacement of the organic filter material or may require installation of another BMP to prevent failure of the berm.

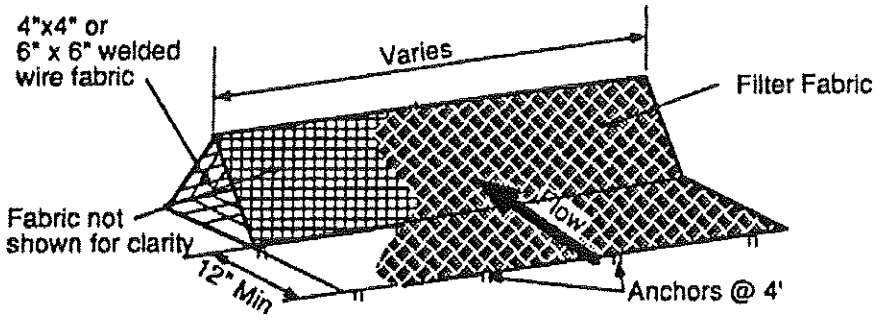
Dimensions of the berm must be maintained by replacing organic filter material when necessary.

There shall be no signs of erosion, breeching or runoff around or under the berm.

SPECIFICATION

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Triangular Sediment Filter Dike



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A Triangular Sediment Filter Dike is a self-contained silt fence consisting of filter fabric wrapped around welded wire fabric shaped into a triangular cross section. While similar in use to a silt fence, the dike is reusable, sturdier, transportable, and can be used on paved areas or in situations where it is impractical to install embedded posts for support.

PRIMARY USE

Triangular filter dikes are used in place of silt fence, treating sediment flow at the perimeter of construction areas and at the perimeter of the site. Also, the dikes can serve as stream protection devices by preventing sediment from entering the streams or as check dams in small swales.

Triangular sediment filter dikes are especially useful for construction areas surrounded by pavement, where silt fence, filter berm, or other BMP installation is impractical.

APPLICATIONS

Triangular dikes are used to provide perimeter control by detaining sediment on a disturbed site with drainage that would otherwise flow onto adjacent properties. Triangular dikes also serve as sediment trapping devices when used in areas of sheet flow across disturbed areas or are placed along stream banks to prevent sediment-laden sheet flow from entering the stream. The dikes can be subjected to more concentrated flows and a higher flow rate than silt fence.

DESIGN CRITERIA

- ❑ Dikes can be used on a variety of surfaces ranging from disturbed earth to pavement.
- ❑ Dikes are to be installed along a line of constant elevation (along a contour line).
- ❑ Maximum drainage area shall be 0.25 acre per 100 linear feet of dike.
- ❑ Maximum flow to any 20 foot section of dike shall be 1 CFS.
- ❑ Maximum distance of flow to dike shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ❑ Maximum slope adjacent to the dike shall be 2:1.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S-3

North Central Texas Council of Governments

Triangular Sediment Filter Dike

- ❑ If 50% or less of soil, by weight, passes the U.S. Standard sieve No. 200, select the apparent opening size (A.O.S.) to retain 85% of the soil.
- ❑ If 85% or more of soil, by weight, passes the U.S. Standard Sieve No. 200, triangular sediment dike shall not be used due to clogging.
- ❑ The filter fabric shall meet the material requirements specified in BMP Fact Sheet S-1, Silt Fence.
- ❑ The internal support for the dike structure shall be 6 gauge 6" x 6" wire mesh folded into triangular form eighteen (18) inches on each side.
- ❑ Filter material shall lap over ends six (6) inches to cover dike-to-dike junction; each junction shall be secured by shoat rings.
- ❑ Tie-in to the existing grade should be accomplished by (i) embedding the fabric six-inches below the top of ground on the upslope side, (ii) extending the fabric to form a 12-inch skirt on the upstream slope and covering it with 3 to 5 inches of crushed rock, or (iii) entrenching the base of the triangular dike four-inches below ground. For (ii) above, the skirt and the upslope portion of the triangular dike skeleton should be anchored by metal staples on two-foot centers, driven a minimum of six inches into the ground (except where crossing pavement or exposed limestone).
- ❑ Sand bags or large rock should be used as ballast inside the triangular dike section to stabilize the dike against the effects of high flows.
- ❑ Sufficient room for the operation of sediment removal equipment shall be provided between the dike and other obstructions in order to properly remove sediment.
- ❑ The ends of the dike shall be turned upgrade to prevent bypass of storm water.

LIMITATIONS

Effects of ponding caused by the dikes should be evaluated for effects on adjacent areas.
Triangular sediment filter dikes are not effective for conditions where there are substantial concentrated flows or when they are not constructed along a contour line due to the potential for flow concentration and overtopping.

MAINTENTANCE REQUIREMENTS

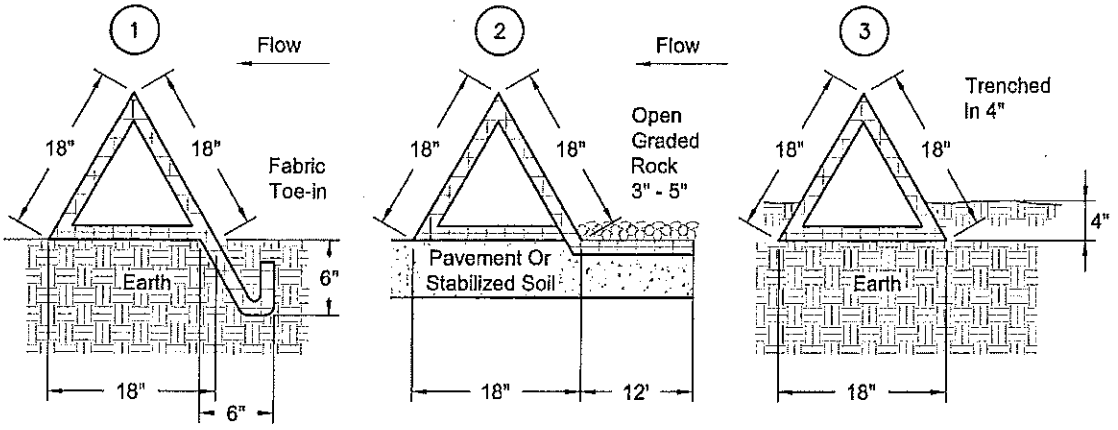
Triangular sediment filter dikes should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Sediment should be removed when it reaches approximately 6 inches in depth. If the fabric becomes clogged, it should be cleaned or, if necessary, replaced. If structural deficiencies are found, the dike should be immediately repaired or replaced.

As with silt fence, integrity of the filter fabric is important to the effectiveness of the dike. Overlap between dike sections must be checked on a regular basis and repaired if deficient.

SPECIFICATION

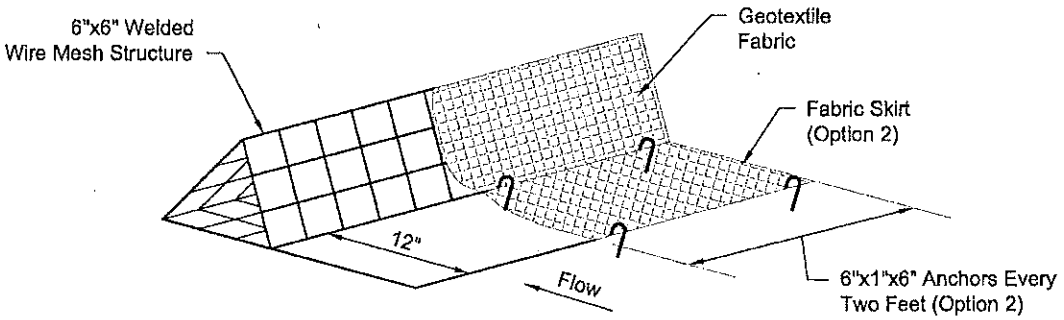
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.8 Triangular Sediment Filter Dike.

Triangular Sediment Filter Dike



Cross Section Of Installation Options

1. Toe-in 6" Min.
2. Fabric Skirt Weighted With Rock
3. Trenched In 4"



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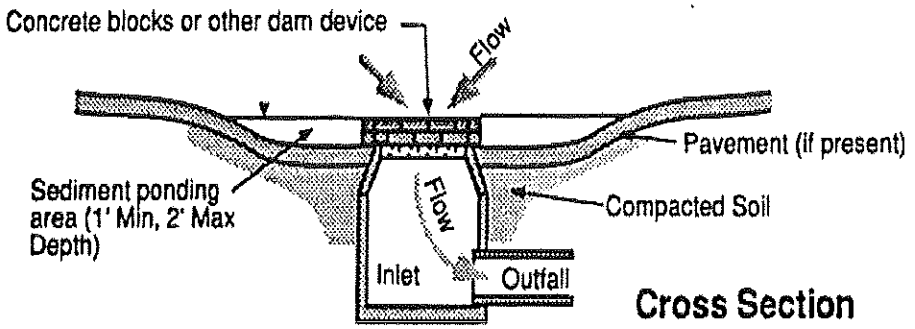
Inlet Protection



Cross Section

Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ● Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

S-4

North Central Texas Council of Governments

DESCRIPTION

Inlet protection consists of a variety of methods of intercepting sediment at low point inlets through the use of stone, filter fabric, inlet inserts, and other materials. This is normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in storm water.

PRIMARY USE

Inlet protection should be considered a secondary defense in site erosion control due to the limited effectiveness and applicability of the technique. It is normally used in new developments that include new inlets or roads with new curb inlets or during major repairs to existing roadways.

Inlet protection has limited use in developed areas due to the potential for flooding, traffic safety, pedestrian safety, and maintenance problems. Inlet protection can reduce sediment in storm sewer systems by serving as a back up system to onsite controls or by reducing sediment loads from controls with limited effectiveness.

APPLICATIONS

Different inlet protection variations are used for different conditions as follows:

- ❑ Filter barrier protection (similar to a silt fence barrier around the inlet) is appropriate when the drainage area is less than one acre and the basin slope is less than five (5) percent. This type of protection is not applicable in paved areas.
- ❑ Block and gravel (crushed stone, recycled concrete is also appropriate) protection is used when flows exceed 0.5 c.f.s. and it is necessary to allow for overtopping to prevent flooding.
- ❑ Excavated impoundment protection around a drop inlet may be used for protection against sediment entering a storm drain system. With this method, it is necessary to install weep holes to allow the impoundment to drain completely. The impoundment shall be sized such that the volume of excavation shall be equal to 1800 to 3600 cubic feet per acre of disturbed area entering the inlet for full effectiveness.

Inlet Protection

DESIGN CRITERIA

- ❑ Special caution must be exercised when installing inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.
- ❑ Filter fabric protection shall be designed and maintained in a manner similar to silt fence.
- ❑ Where applicable, filter fabric, posts, and wire backing shall meet the material requirements specified in BMP Fact Sheet S-1, Silt Fence.
- ❑ Filter gravel shall be ¾ inch (Block and Gravel Protection) or 1-1/2 to 2 inch (Excavated Impoundment Protection) washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- ❑ Concrete blocks shall be standard 8" x 8" x 16" concrete masonry units.
- ❑ Maximum depth of flow shall be eight (8) inches or less.
- ❑ Positive drainage is critical in the design of inlet protection. If overflow is not provided for at the inlet, excess flows shall be routed through established swales, streets, or other watercourses to minimize damage due to flooding.
- ❑ Filter Barrier Protection
  Silt Fence shall consist of nylon geotextile supported by wire mesh, W1.4 X W1.4, and galvanized steel posts set a minimum of 1 foot depth and spaced not more than 6 feet on center. A 6 inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel. This entrenchment prevents any bypass of runoff under the fence.
- ❑ Block and Gravel Protection (Curb and Drop Inlets)
  Concrete blocks are to be placed on their sides in a single row around the perimeter of the inlet, with ends abutting. Openings in the blocks should face outward, not upward. ½" x ½" wire mesh shall then be placed over the outside face of the blocks covering the holes. Filter stone shall then be piled against the wire mesh to the top of the blocks with the base of the stone being a minimum of 18 inches from the blocks. Alternatively, where loose stone is a concern (streets, etc.), the filter stone mayb be placed in appropriately sized geotextile fabric bags. Periodically, when the stone filter becomes clogged, the stone must be removed and cleaned in a proper manner or replaced with new stone and piled back against the wire mesh.
- ❑ Excavated Impoundment Protection
  An excavated impoundment shall be sized to provide a storage volume of between 1800 and 3600 cubic feet per acre of disturbed area. The trap shall have a minimum depth of one foot and a maximum depth of 2 feet as measured from the top of the inlet and shall have sideslopes of 2:1 or flatter. Weep holes are to be installed in the inlet walls to allow for the complete dewatering of the the trap. When the storage capacity of the impoundment has been reduced by one-half, the silt shall be removed and disposed in a proper manner.
- ❑ Inlet inserts are commercially available to remove sediment, constituents (pollutants) adsorbed to sediment, and oil and grease. Maintenance is required to removesediment and debris that could clog the filters. Inlet inserts must have a bypass function to prevent flooding from clogging or high flows.

LIMITATIONS

Special caution must be exercised when installing inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.

Inlet protection is only viable at low point inlets. Inlets that are on a slope cannot be effectively protected because storm water will bypass the inlet and continue downstream, causing an overload condition at inlets downstream.

Inlet Protection

MAINTENANCE REQUIREMENTS

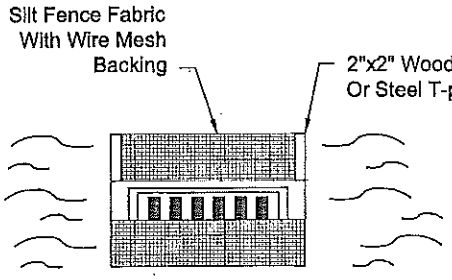
Inlet protection should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When silt fence is used and the fabric becomes clogged, it should be cleaned or, if necessary, replaced. Also, sediment should be removed when it reaches approximately one-half the height of the inlet protection device. If a sump is used, sediment should be removed when the volume of the basin is reduced by 50%.

For systems using filter stone, when the filter stone becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of stone at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill material and put new stone around the inlet.

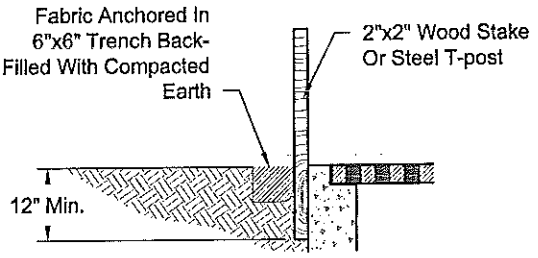
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.15 Inlet Protection.

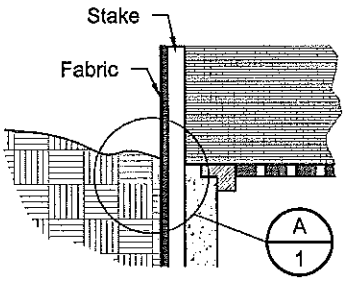
Inlet Protection - Filter Barrier



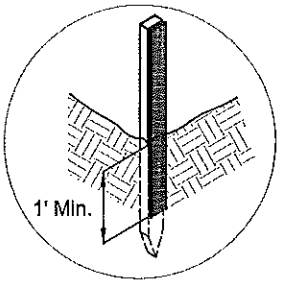
Perspective View



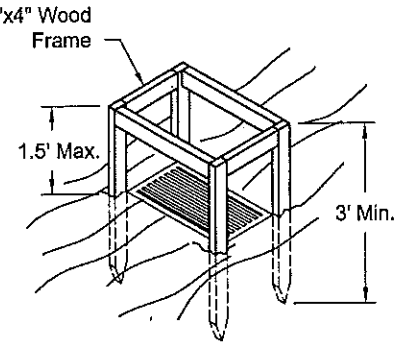
I. Standard Installation



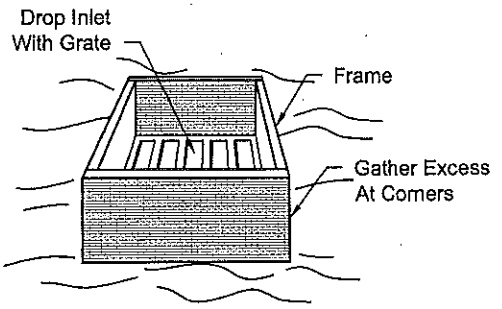
Elevation Of Stake And
Fabric Orientation



Detail A



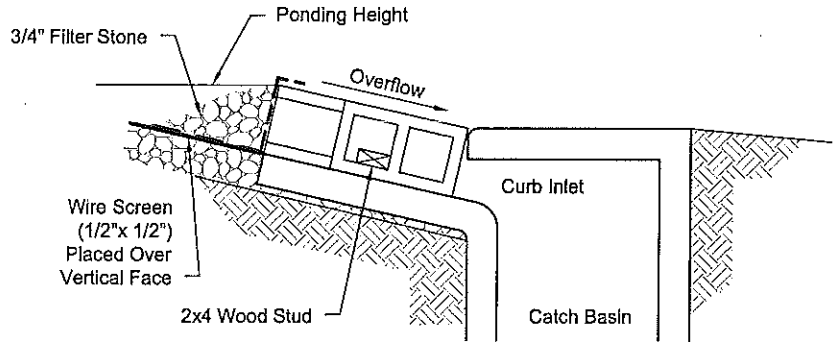
Perspective View



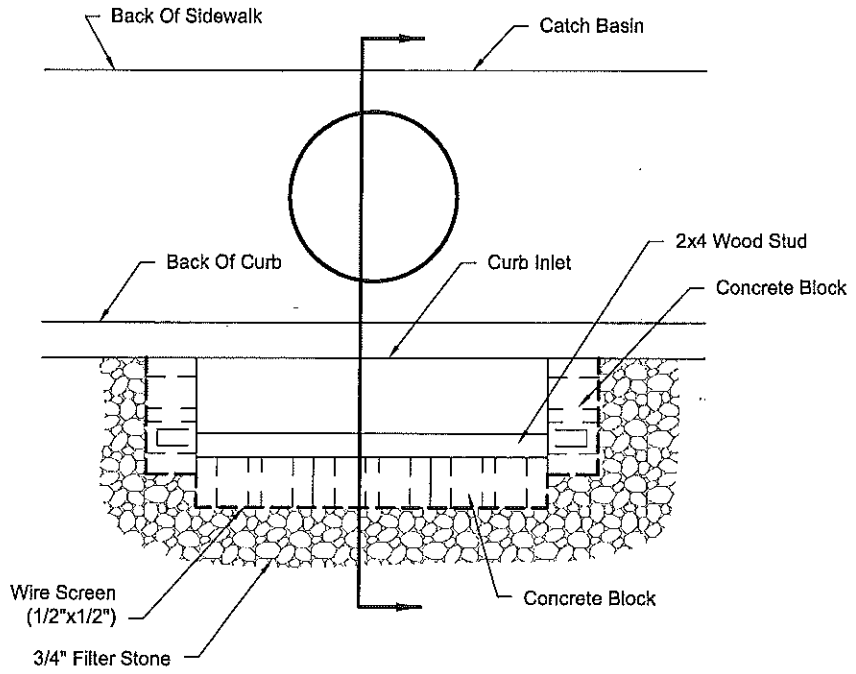
Perspective View

Specific application:
This method of inlet protection is applicable where the inlet drains a relatively flat area (slope no greater than 5%) where the inlet sheet or over-land flows (not to exceed 1 c.F.S.) are typical. The method shall not apply to inlets receiving concentrated flows such as in streets or highway medians.

Inlet Protection - Curb

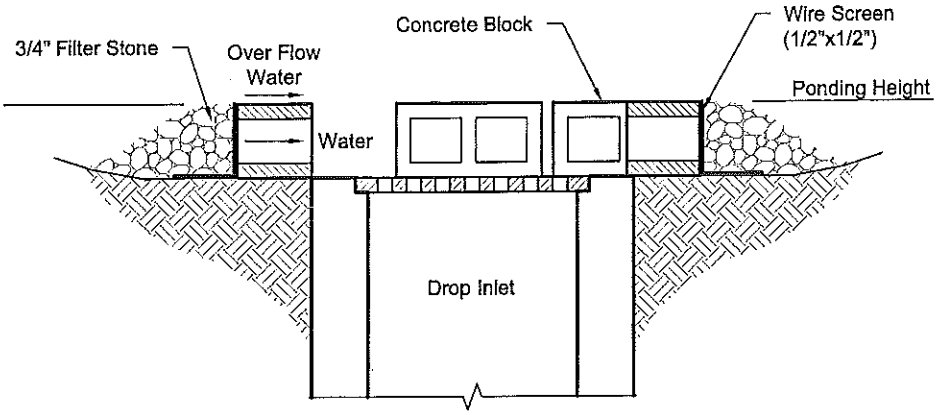


Cross Section

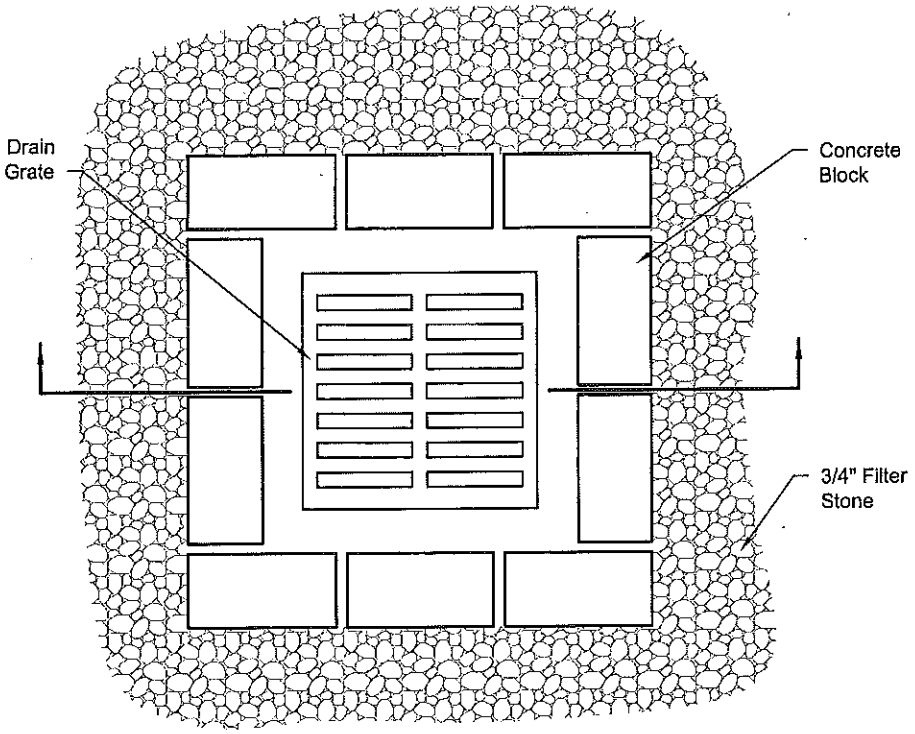


Plan View

Inlet Protection – Drop Inlet

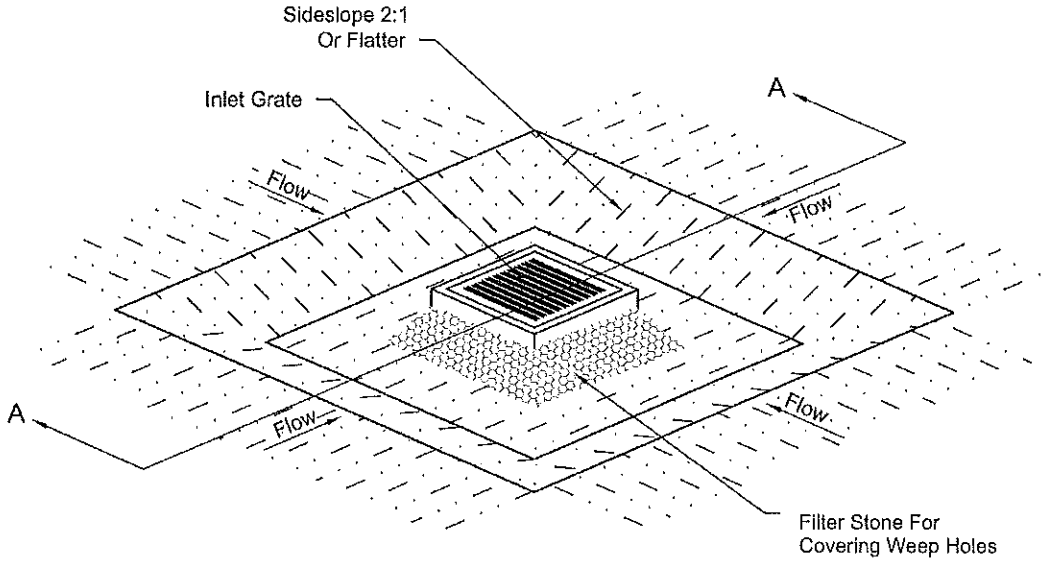


Cross Section

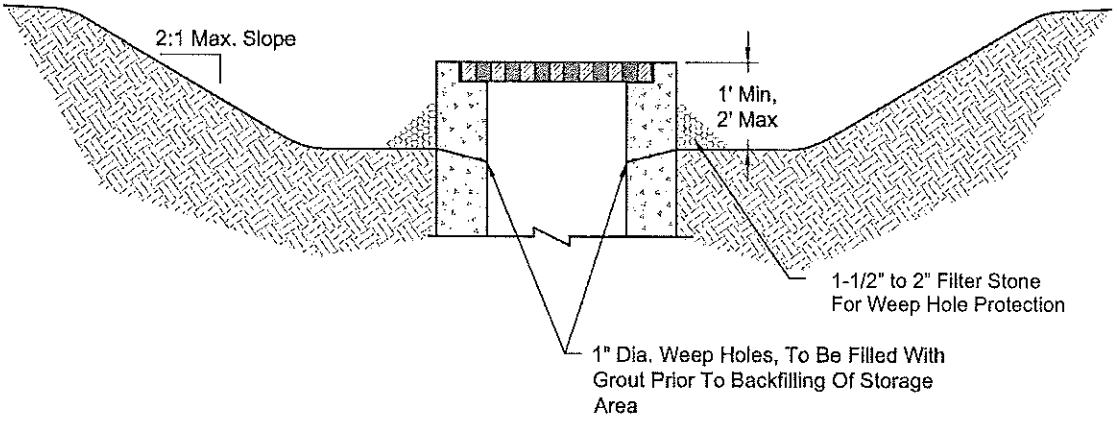


Plan View

Inlet Protection - Excavated Impoundment



Isometric Plan View



Section A-A

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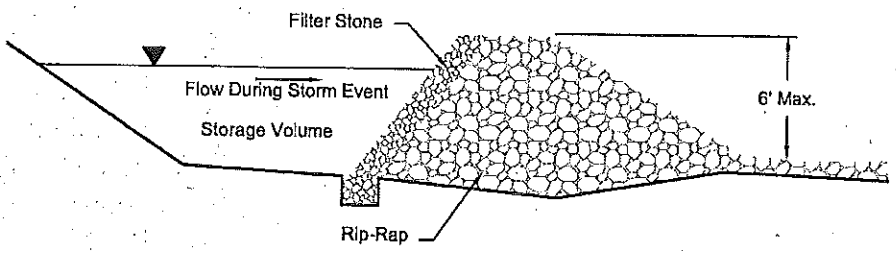
Stone Outlet Sediment Trap



Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A stone outlet sediment trap is a small ponding area formed by placing a stone embankment with an integral stone filter outlet across a drainage swale for the purpose of detaining sediment-laden runoff generated by construction activities. The sediment trap detains runoff long enough to allow most of the suspended sediment to settle while still allowing for diffused flow of runoff.

PRIMARY USE

A sediment trap is used in situations where flows are concentrated in a drainage swale or channel. The sediment trap reduces velocities and allows for settling of sediment while allowing the area behind the trap to de-water. This is normally used for long term (18 months or less) applications in which a sediment basin is not feasible due to site or construction method restrictions.

APPLICATIONS

Temporary stone outlet sediment traps are installed at locations where concentrated flows require a protected outlet to contain sediment or spread flow prior to discharge.

DESIGN CRITERIA

- ❑ The maximum drainage area contributing to the trap shall be 10 acres. For larger drainage areas a sediment basin should be used.
- ❑ The minimum storage volume shall be 1800 cubic feet per acre of disturbed land draining to the device.
- ❑ The surface area of the design storage area shall be 1% of the area draining to the device.
- ❑ The maximum embankment height shall be 6 feet as measured from the toe of the slope on the downstream side
- ❑ Minimum width of the embankment at the top shall be 2 feet.
- ❑ Embankment slope shall be 1.5:1 or flatter.
- ❑ The embankment shall have a depressed area to serve as the outlet with a minimum width of 4 feet.
- ❑ A six inch minimum thickness layer of ¾ to 2 inch (1-½ inch nominal) well graded filter stone shall be placed on the face of the embankment.
- ❑ The embankment shall be comprised of well graded stone with a size range of 6 to 12 inches in diameter. The stone may be enclosed in wire mesh or gabion basket and anchored to the channel bottom to prevent washing away.
- ❑ The outlet shall be designed to have a minimum freeboard of 6" at design flow.

Targeted Constituents

- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ○ Capital Costs
- ◒ Maintenance
- ○ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.85

S-5

North Central Texas Council of Governments

Stone Outlet Sediment Trap

- The embankment shall be place on geotextile fabric meeting the following minimum criteria:
  - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 250-lbs
  - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 135-lbs.
  - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 420-psi.
  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max).
- The geotextile fabric, covered with a layer of stone, shall extend past the base of the embankment on the downstream side a minimum of 2 feet.

LIMITATIONS

Limited applications due to cost of construction, availability of materials, and the amount of land required.

Can cause minor upstream flooding, possibly impacting construction operations.

MAINTENANCE REQUIREMENTS

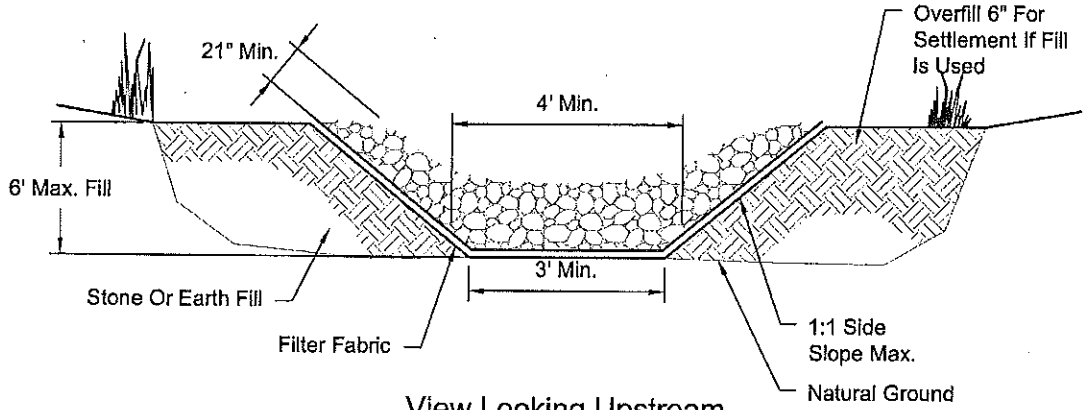
The stone outlet structure should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to check for clogging of the void spaces between stones. If the aggregate appears to be silted in such that efficiency is diminished, the stone should be replaced.

Deposited sediment shall be removed when the depth of sediment is equal to one-third of the height of the embankment as measured from the original toe of slope to the crest of the outlet, or has reached a depth of one foot, whichever is less. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.

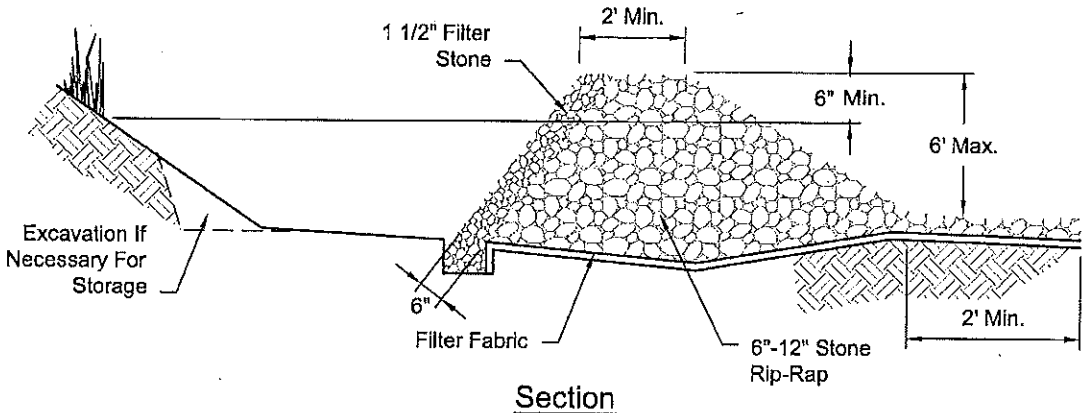
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.12 Stone Outlet Sediment Trap.

Stone Outlet Sediment Trap



View Looking Upstream



Section

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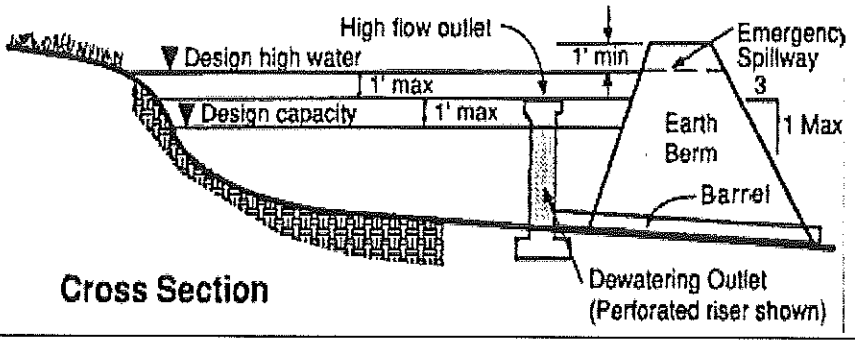
Sediment Basin



Cross Section

Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A sediment basin is a pond area with a controlled outlet in which sediment-laden runoff is directed to allow settling of suspended sediment from the runoff. It provides treatment for the runoff as well as detention and controlled release of runoff, minimizing flood impacts downstream.

PRIMARY USE

Sediment basins should be used for all sites with adequate open space to locate the basin and where the site topography directs a majority of the site drainage into the basin. For sites with disturbed areas of 10 acres and larger that are part of a common drainage area, sediment basins are necessary as either temporary or permanent controls, unless specific site conditions limit their use.

APPLICATIONS

Sediment basins serve as treatment devices which can be used on a variety of project types. They are normally used in site development projects in which large areas of land are available for the basin, a minor stream or off-line drainage way crosses the site, or a specific water feature is planned for the site. Sediment basins are highly effective at reducing sediment and other pollutants for design storm conditions. Sediment basins are typically easier to maintain than other structural controls (e.g. silt fences, etc).

DESIGN CRITERIA

- ❑ Refer to Appendix D of this manual for specific design guidance on temporary sediment basins.
- ❑ The iSWM Design Manual for Development/ Redevelopment should be used for guidance on the design of permanent sediment basins
- ❑ Minimum capacity of the basin shall be the calculated volume of runoff from a 2-year, 24-hour duration storm event.
- ❑ Deposited sediment shall be removed when the storage capacity of the basin has been reduced by 20%.
- ❑ Minimum width of the embankment at the top shall be 8 feet.
- ❑ Embankment slope shall be 3:1 or flatter.
- ❑ Maximum embankment height shall be 6 feet as measured from the toe of slope on the downstream side. Sediment basins with embankments exceeding 6 feet are regulated by the Texas Commission on Environmental Quality and must meet specific requirements for dam safety.

Targeted Constituents

- ● Sediment
- ◒ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ◒ Training
- ● Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.90

S-6

North Central Texas Council of Governments

Sediment Basin

- ❑ The basin outlet shall be designed to accommodate a 25-year design storm without causing damage to the containment structure.
- ❑ The sediment basin shall have minimum design dewatering time of 36 hours.
- ❑ The basin must be laid out such that the effective flow length of the basin should be at least twice the effective flow width.
- ❑ The outlet of the outfall pipe (barrel) shall be stabilized with riprap or other form of stabilization with design flows and velocities based on 25-year design storm peak flows. For velocities in excess of 5 feet per second, velocity dissipation measures should be used to reduce outfall velocities.
- ❑ The effectiveness of sediment basins may be increased by using baffles to prevent short-circuiting of flow through the basin.

SPECIAL CONSIDERATION

Sediment basins must be designed, constructed, and maintained to minimize mosquito breeding habitats by minimizing the creation of standing water. Whenever possible, water should be held less than 72 hours.

LIMITATIONS

Sediment basins can be rather large depending on site conditions, requiring the use of expensive development area and comprehensive planning for construction phasing prior to implementation.

Storm events which exceed the design storm event can cause damage to the spillway structure of the basin and may impact downstream concerns.

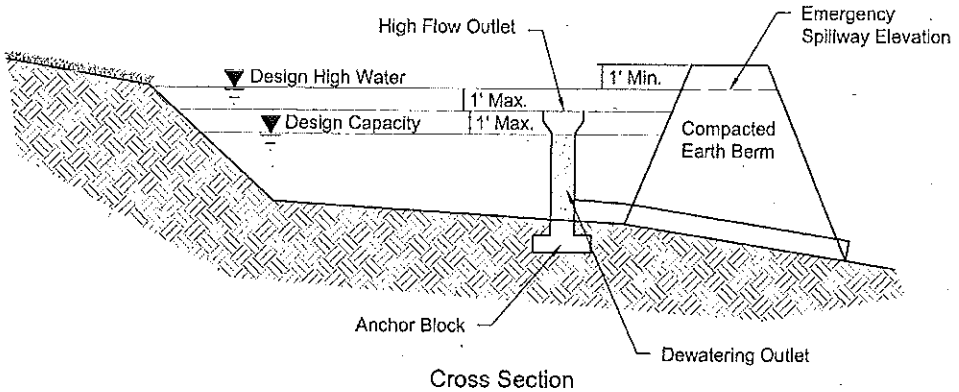
MAINTENANCE REQUIREMENTS

Sediment basins should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) to check for damage and to insure that obstructions are not diminishing the effectiveness of the structure. Sediment shall be removed and the basin shall be regraded to its original dimensions at such point that the capacity of the impoundment has been reduced to 20% of its original storage capacity. The removed sediment shall be stockpiled or redistributed in areas that are protected by erosion and sediment controls.

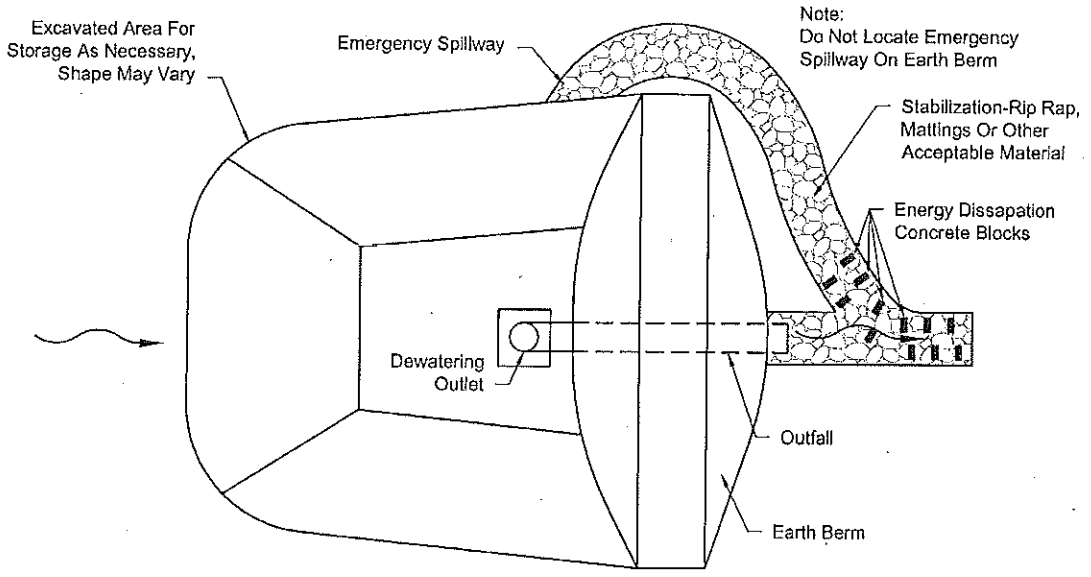
SPECIFICATION

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Sediment Basin



Cross Section



Plan View

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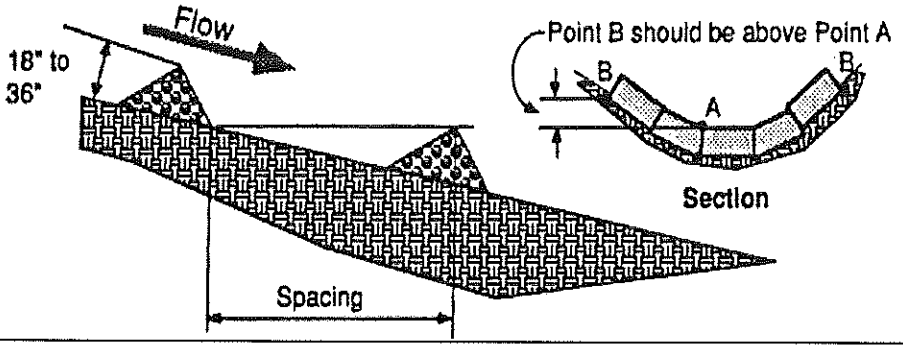
Check Dams



Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- **Channel Protection**
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

Check dams are small barriers consisting of rock, sand bag or earth berms placed across a drainage swale or ditch. They reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion.

PRIMARY USE

Check dams are used for long drainage swales or ditches to reduce erosive velocities. They are typically used in conjunction with other channel protection techniques such as vegetation lining and turf reinforcement mats. Check dams provide limited treatment to sediment-laden flows. They are more useful in reducing flow to acceptable levels for other techniques.

APPLICATIONS

Check dams are typically used early in construction in swales for long linear projects such as roadways. They can also be used in short swales with a steep slope to reduce unacceptable velocities. Check dams shall not be used in live stream channels

DESIGN CRITERIA

- ❑ Check dams should be placed at a distance and height to allow small pools to form between each one. Typically, dam height should be between 18" and 36". Dams should be spaced such that the top of the downstream dam should be at the same elevation as the toe of the upstream dam.
- ❑ Major flows (greater than 2 year design storm) must pass the check dam without causing excessive upstream flooding.
- ❑ Check dams should be used in conjunction with other sediment reduction techniques prior to releasing flow offsite.
- ❑ Use geotextile filter fabric under check dams exceeding 18 inches in height. The fabric shall meet the material specified for the Stone Outlet Sediment Trap, S-5.

Rock Check Dams

- ❑ Stone shall be well graded with size range from 1-1/2 to 3-1/2 inches in diameter depending on expected flows.
- ❑ Rock check dams should be triangular in cross section with side slopes of 1:1 or flatter on the upstream side and 2:1 or flatter on the downstream side.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.40

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North Central Texas Council of Governments

Check Dams

Sand Bag Dams

- ❑ Sand bag check dams should have a maximum flow through rate of 0.1 cfs per square foot of surface with a minimum top width of 16 inches and bottom width of 48 inches. Bags should be filled with coarse sand, pea gravel, or filter stone that is clean and free of deleterious material.
- ❑ Bag length shall be 24-inches to 30-inches, width shall be 16-inches to 18-inches and thickness shall be 6-inches to 8-inches and having an approximate weight of 40-pounds.
- ❑ Bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4-ounces-per-square-yard, Mullen burst strength exceeding 300-psi as determined by ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, and ultraviolet stability exceeding 70-percent.
- ❑ PVC pipes may be installed through the sand bag dam near the top to allow for controlled flow through the dam. Pipe should be schedule 40 or heavier polyvinyl chloride (PVC) having a nominal internal diameter of 4 inches.

LIMITATIONS

Minor ponding will occur upstream of the check dams. For heavy flows or high velocity flows, extensive maintenance or replacement of the dams will be required.

Care must be used when taking out rock check dams in order to remove as much rock as possible. Loose rock can create an extreme hazard during mowing operations once the area has been stabilized.

MAINTENANCE REQUIREMENTS

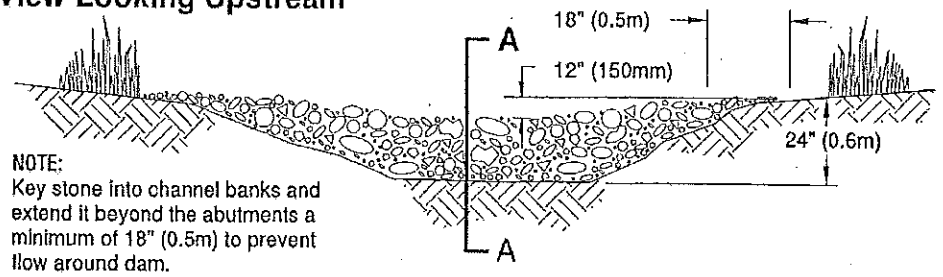
Check dams should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). Silt must be removed when it reaches approximately 1/3 the height of the dam or 12", whichever is less.

SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.9 Rock Dam and Item 201.11Sand Bag Dam.

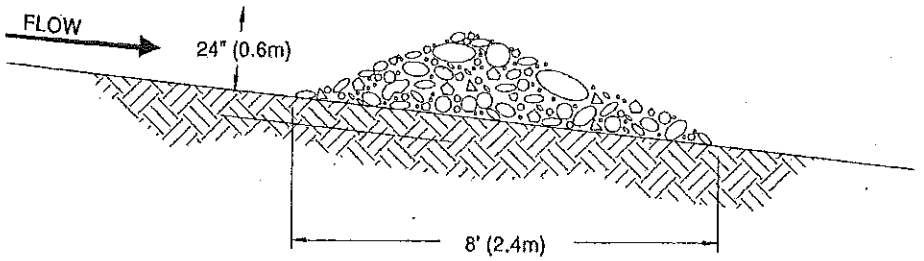
Check Dams

View Looking Upstream

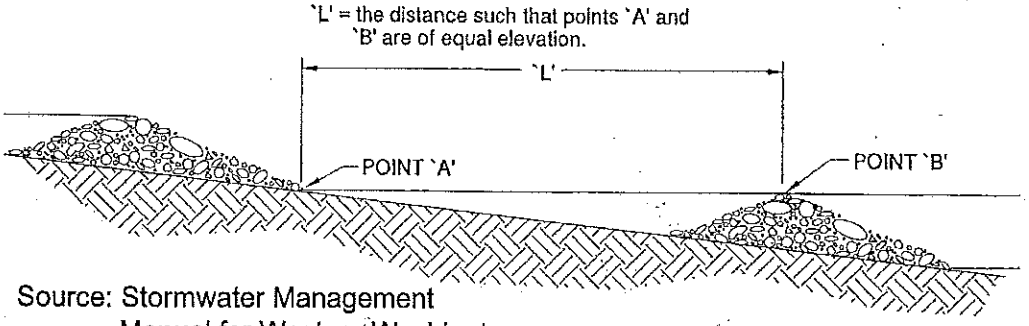


NOTE:
Key stone into channel banks and extend it beyond the abutments a minimum of 18" (0.5m) to prevent flow around dam.

Section A - A



Spacing Between Check Dams



Source: Stormwater Management Manual for Western Washington.

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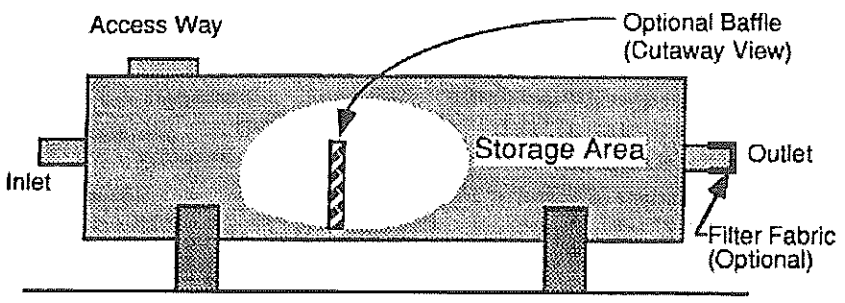
Temporary Sediment Tank



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A temporary sediment tank (TST) is a large tank used to hold sediment-laden water to provide for sedimentation and filtration. For smaller applications, 55-gallon drums or other watertight container can be used for storage. Water is pumped into the tank where it is detained. If desired an outlet with a geofabric filter can be provided to release the flow after a period of detention.

PRIMARY USE

A TST is typically used at construction sites in urban areas where conventional methods of sediment removal (e. g., sediment traps, and sediment basins) are not practical.

APPLICATIONS

Applications for a TST include utility construction in confined areas (such as a business district or large developed area) or localized construction in which other BMPs are not required such as small, depressed construction areas (tank farms). This includes pumpage from excavation in heavily developed areas, such as a central business district, with flows due to groundwater or runoff entering the trench or excavated area.

DESIGN CRITERIA

- ❑ A TST can be used as either a sedimentation or filtration device. If an oil sheen is present in the runoff, additional treatment will be required before release of runoff.
- ❑ For use as a small scale sedimentation basin, de-watering discharge is directed into the TST to a level below the tank midpoint and held for a minimum of 2 hours to allow settlement of a majority of the suspended particles. The tank should be designed for a controlled release when the contents of the tank reach a level higher than the midpoint. When sediment occupies 1/3 the capacity of the TST, it should be removed from the tank.
- ❑ As a filtration device, a TST is used for collecting de-watering discharge and passing it through a filtered opening at the outlet of the tank to reduce suspended sediment volume. The filter opening in the TST should have an Apparant Opening Size (AOS) (see Silt Fence BMP) of 70 or smaller.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ● Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.70

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North Central Texas Council of Governments

Temporary Sediment Tank

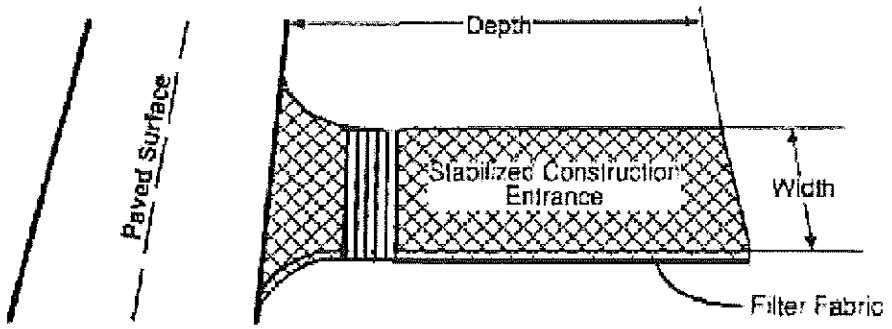
LIMITATIONS
This is a specialized technique for the situations listed. It is not cost effective for normal sediment removal conditions.

The use of a temporary sediment tank is limited by the capacity of the tank, the time required for settlement of suspended material, and disposal of the water and the sediment.

MAINTENANCE REQUIREMENTS
Sediment tanks should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). The tank should be cleaned out when it becomes 1/3 full of sediment.

SPECIFICATION
No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Stabilized Construction Entrance



Applications

- Perimeter Control
- Slope Protection
- Sediment Trapping
- Channel Protection
- **Temporary Stabilization**
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

A stabilized construction entrance consists of a pad consisting of crushed stone, recycled concrete or other rock like material on top of geotextile filter cloth to facilitate the removal of sediment and other debris from construction equipment prior to exiting the construction site. This directly addresses the problem of silt and mud deposition in roadways used for construction site access. For added effectiveness, a wash rack area can be incorporated into the design to further reduce sediment tracking (See Wheel Wash, Fact Sheet S-10).

PRIMARY USE

Stabilized construction entrances are used primarily for sites in which significant truck traffic occurs on a daily basis. It reduces the need to remove sediment from streets. If used properly, it also directs the majority of traffic to a single location, reducing the number and quantity of disturbed areas on the site and providing protection for other structural controls through traffic control.

APPLICATIONS

Stabilized construction entrances are a required part of the erosion control plan for all site developments larger than one acre and a recommended practice for all construction sites. If possible, controlled entrances should be incorporated into small lot construction due to the large percentage of disturbed area on the site and the high potential for offsite tracking of silt and mud.

DESIGN CRITERIA

- ❑ Stabilized construction entrances are to be constructed such that drainage across the entrance is directed to a controlled, stabilized outlet on site with provisions for storage, proper filtration, and removal of wash water.
- ❑ The entrance must be sloped away from the paved surface so that storm water is not allowed to leave the site onto roadways.
- ❑ Minimum width of entrance shall be 15 feet.
- ❑ Stone shall be placed in a layer of at least 12-inches thickness. The stone shall be a minimum of 3 to 5 inch coarse aggregate.
- ❑ Prevent shortcutting of the full length of the construction entrance by installing barriers as necessary.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ● Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe = N/A

S-9

North Central Texas Council of Governments

Stabilized Construction Entrance

- The geotextile fabric must meet the following minimum criteria:
  - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 300-lbs.
  - Puncture Strength, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Prodeucts, 120-lbs.
  - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 600-psi.
  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 40 (max).
- When necessary, vehicles must be cleaned to remove sediment prior to entrance onto paved roads, streets, or parking lots. When washing is required, it shall be done on a constructed wheel wash facility that drains into an approved sediment trap or sediment basin or other sedimentation/filtration device.
- Minimum dimensions for the entrance shall be as follows:

Tract Area	Avg. Tract Depth	Min. Width of Entrance	Min. Depth of Entrance
< 1 Acre	100 feet	15 feet	20 feet
< 5 Acres	200 feet	20 feet	50 feet
> 5 Acres	> 200 feet	25 feet	75-100 feet

LIMITATIONS

Selection of the construction entrance location is critical. To be effective, it must be used exclusively.

Stabilized entrances are rather expensive considering that it must be installed in combination with one or more other sediment control techniques, but it may be cost effective compared to labor-intensive street cleaning.

MAINTENANCE REQUIREMENTS

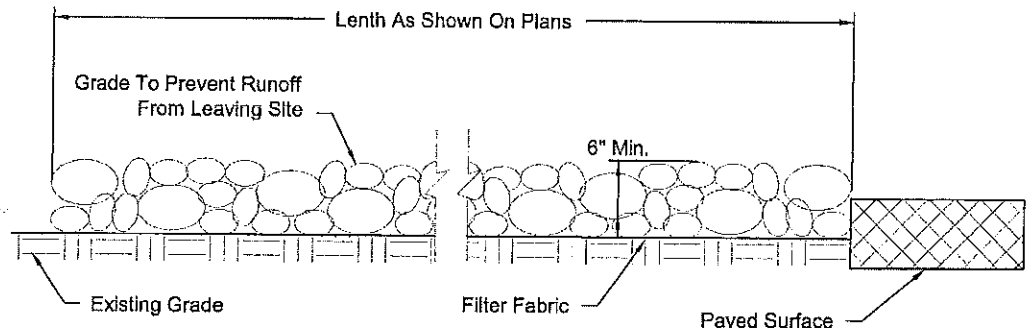
Construction entrances should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When sediment has substantially clogged the void area between the rocks, the aggregate mat must be washed down or replaced. Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the entrance from diminishing.

If the stabilized construction entrance is not effectively removing sediment from wheels then a wheel wash should be considered.

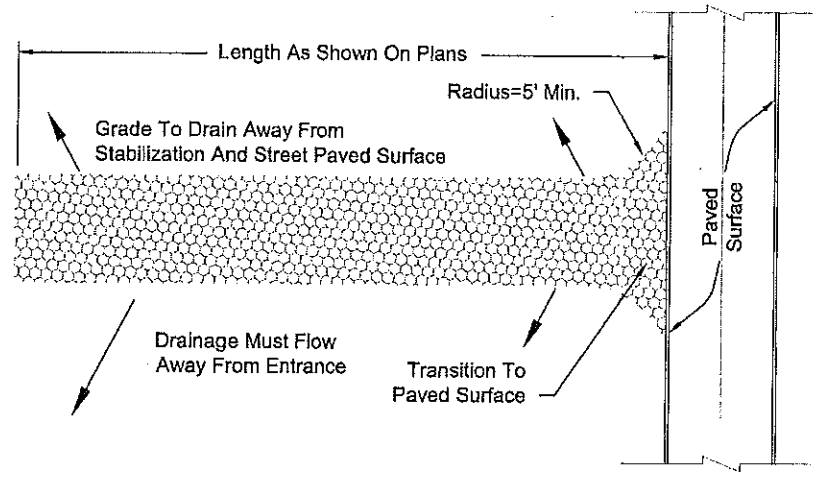
SPECIFICATION

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.10 Stablilized Construction Entrance.

Stabilized Construction Entrance



Profile View



Entrance Must Be Sloped So That Storm Water Is Not Allowed To Leave The Site And Enter Roadways.

Plan View

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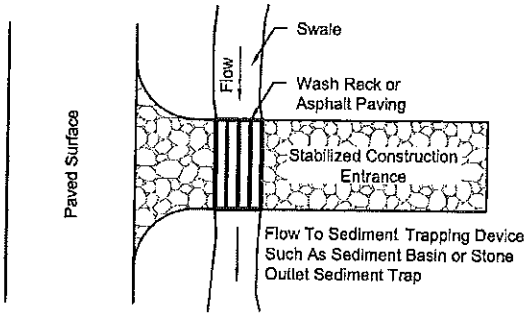
Wheel Wash



Applications

- Perimeter Control
- Slope Protection
- **Sediment Trapping**
- Channel Protection
- Temporary Stabilization
- Permanent Stabilization
- Waste Management
- Housekeeping Practices

DESCRIPTION

The wheel wash is used in conjunction with a stabilized construction entrance to provide an area where truck wheels and undercarriages can be cleaned prior to traversing the stabilized construction entrance and entering the public road system. A wheel wash may consist of an impervious area or a grate over a swale. Wash water from hand held pressure washers or fixed nozzles is collected and drained to a sediment-trapping device such as a stone outlet sediment trap or sediment basin to provide for removal of sediment prior to discharge.

PRIMARY USE

Wheel washes should be used on large jobs where there is significant truck traffic, on those sites where site conditions cause the stabilized construction entrance to be overloaded with sediment and become ineffective, and in those instances where contaminated solids might be present on site. They provide added protection and reduce the need to remove sediment from streets.

APPLICATIONS

Wheel washes should be considered an ancillary component to the stabilized construction entrance.

DESIGN CRITERIA

- The location should be within the stabilized construction entrance so that the vehicle does not pick up additional sediment load by traversing disturbed areas.
- The size of the wheel wash facility should be sufficient so that all wash water and sediment is collected and drained to a sediment trapping device such as a sediment basin or stone outlet sediment trap.
- Suggested designs:
  - 4-inch thick asphalt pavement on an 8-inch base of crushed rock graded so that wash water drains to a swale; or
  - grate suitably designed to support construction vehicles installed over a swale.
- The facility should be designed so that it can be cleaned between uses.

LIMITATIONS

Sediment trapping BMPs used in conjunction with wheel wash facilities must be carefully designed for the anticipated amount of wash water to be treated.

Targeted Constituents

- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements

- ◒ Capital Costs
- ◒ Maintenance
- ◒ Training
- ○ Suitability for Slopes > 5%

Legend

- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe = N/A

S-10

North Central Texas Council of Governments

Wheel Wash

MAINTENANCE REQUIREMENTS

Wheel wash facilities should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). The surface of the wheel wash should be cleaned between vehicles as necessary. Sediment that has accumulated in the wash water sedimentation BMP (sediment trap, sediment basin, etc.) must be removed when it reaches a depth of approximately 1/3 the design depth of the device or 12", whichever is less. The removed sediment shall be stockpiled or redistributed in areas that are protected from erosion.

SPECIFICATION

No specification for construction of this item is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

Appendix I

TPDES General Permit Number TXR150000 For Construction Activities

TPDES General Permit
NO. TXR150000

This is a new general permit issued pursuant to Section 26.040 of the Texas Water Code and Section 402 of the Clean Water Act.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. BOX 13087
Austin, TX 78711-3087

GENERAL PERMIT TO DISCHARGE WASTE
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

Construction sites located in the state of Texas

may discharge to surface water in the state

only according to effluent limitations, monitoring requirements and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of storm water and certain non-storm water discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit and the authorization contained herein shall expire at midnight five years after the date of issuance.

ISSUED AND EFFECTIVE DATE: MAR 05 2003

For the Commission

TCEQ General Permit Number TXR150000 Relating To Discharges From Construction Activities

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Part I. Definitions

Best Management Practices - (BMPs) Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Commencement of Construction - The exposure of soils resulting from activities such as clearing, grading, and excavating.

Common Plan of Development - A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities.

Facility or Activity - Any TPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the TPDES program.

Final Stabilization - A construction site status where either of the following conditions are met:

(a) All soil disturbing activities at the site have been completed and a uniform (e.g, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or goetextiles) have been employed.

(b) For individual lots in a residential construction site by either:

(1) the homebuilder completing final stabilization as specified in condition (a) above; or

(2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.

(c) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to a surface water and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

Large Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Large construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

Municipal Separate Storm Sewer System (MS4) - A separate storm sewer system owned or operated by a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization.

Notice of Intent (NOI) - A written submission to the executive director from an applicant requesting coverage under a general permit.

Notice of Termination (NOT) - A written submission to the executive director from a permittee authorized under a general permit requesting termination of coverage.

Operator - The person or persons associated with a large or small construction activity that meets either of the following two criteria:

(a) the person or persons have operational control over construction plans and specifications to the extent necessary to meet the requirements and conditions of this general permit; or

(b) the person or persons have day-to-day operational control of those activities at a construction site which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the Storm Water Pollution Prevention Plan or comply with other permit conditions).

Permittee - An operator authorized under this general permit. The authorization may be gained through submission of a notice of intent, by waiver, or by meeting the requirements for automatic coverage to discharge storm water runoff and certain non-storm water discharges.

Point Source - Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are, or may be, discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - (from the Texas Water Code, Chapter 26) Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any surface water in the state. The term "pollutant" does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, and farmland.

Pollution - (from the Texas Water Code, Chapter 26) The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Runoff Coefficient - The fraction of total rainfall that will appear at the conveyance as runoff.

Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), designed or used for collecting or conveying storm water; that is not a combined sewer, and that is not part of a publicly owned treatment works (POTW).

Small Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of a ditch, channel, or other similar storm water conveyance. Small construction activity does not include the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.

Storm Water - Storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm Water Associated with Construction Activity - Storm water runoff from a construction activity where soil disturbing activities (including clearing, grading, excavating) result in the disturbance of one (1) or more acres of total land area, or are part of a larger common plan of development or sale that will result in disturbance of one (1) or more acres of total land area.

Structural Control (or Practice) - A pollution prevention practice that requires the construction of a device, or the use of a device, to capture or prevent pollution in storm water runoff. Structural controls and practices may include but are not limited to: silt fences, earthen dikes, drainage swales, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits

of the state (from the mean high water mark (MHWM) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Temporary Stabilization - A condition where exposed soils or disturbed areas are provided a protective cover, which may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place.

Waters of the United States - (from title 40, part122, section 2 of the Code of Federal Regulations) Waters of the United States or waters of the U.S. means:

(a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) all interstate waters, including interstate wetlands;

(c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

  (1) which are or could be used by interstate or foreign travelers for recreational or other purposes;

  (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

  (3) which are used or could be used for industrial purposes by industries in interstate commerce;

(d) all impoundments of waters otherwise defined as waters of the United States under this definition;

(e) tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) the territorial sea; and

(g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Part II. Permit Applicability and Coverage

Section A. Discharges Eligible for Authorization

1. Storm Water Associated with Construction Activity

   Discharges of storm water runoff from small and large construction activities may be authorized under this general permit.

2. Discharges of Storm Water Associated with Construction Support Activities

   Discharges of storm water runoff from construction support activities, including concrete batch plants, asphalt batch plants, equipment staging areas, material storage yards, material borrow areas, and excavated material disposal areas may be authorized under this general permit provided:

   (a) the activity is located within a 1-mile distance from the boundary of the permitted construction site and directly supports the construction activity;

   (b) the storm water pollution prevention plan is developed according to the provisions of this general permit and includes appropriate controls and measures to reduce erosion and discharge of pollutants in storm water runoff from the supporting industrial activity site; and

   (c) the industrial activity either does not operate beyond the completion date of the construction activity or obtains separate TPDES authorization for discharges.

3. Non-storm Water Discharges

   The following non-storm water discharges from sites authorized under this general permit are also eligible for authorization under this general permit:

   (a) discharges from fire fighting activities;

(b) fire hydrant flushings;

(c) vehicle, external building, and pavement wash water where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, an dust;

(d) water used to control dust;

(e) potable water sources including waterline flushings;

(f) air conditioning condensate;

(g) uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents.

4. Other Permitted Discharges

Any discharge authorized under a separate NPDES, TPDES, or TCEQ permit may be combined with discharges authorized by this permit.

Section B. Limitations on Permit Coverage

1. Post Construction Discharges.

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization, are not eligible for coverage under this general permit. Discharges originating from the sites are not authorized under this general permit following the submission of the notice of termination (NOT) for the construction activity.

2. Prohibition of Non-Storm Water Discharges

Except as provided in Part II. A.2., A3., and A4., all discharges authorized by this general permit must be composed entirely of storm water associated with construction activity.

3. Compliance With Water Quality Standards

Discharges to surface water in the state that would cause or contribute to a violation of water quality standards or that would fail to protect and maintain existing designated uses are not eligible for coverage under this general permit. The executive director may require an application for an individual permit or alternative

general permit (see Part II.G.3) to authorize discharges to surface water in the state from any activity that is determined to cause a violation of water quality standards or is found to cause, or contribute to, the loss of a designated use. The executive director may also require an application for an individual permit considering factors described in Part II. G.2.

4. Discharges to Water Quality-Impaired Receiving Waters.

New sources or new discharges of the constituents of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standards and are listed on the EPA approved Clean Water Act Section 303(d) list. Constituents of concern are those for which the water body is listed as impaired.

Discharges of the constituents of concern to impaired water bodies for which there is a total maximum daily load (TMDL) implementation plan are not eligible for this permit unless they are consistent with the approved TMDL and the implementation plan. Permittees must incorporate the limitations, conditions, and requirements applicable to their discharges, including monitoring frequency and reporting required by TCEQ rules, into their storm water pollution prevention plan in order to be eligible for coverage under this general permit.

5. Discharges to the Edwards Aquifer Recharge Zone

Discharges cannot be authorized by this general permit where prohibited by 30 Texas Administrative Code (TAC) Chapter 213 (relating to Edwards Aquifer).

(a) For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone, operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

(b) For existing discharges, the requirements of the agency-approved Water Pollution Abatement Plan under the Edwards Aquifer Rules are in addition to the requirements of this general permit. BMPs and maintenance schedules for structural storm water controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in storm water runoff are in addition to the requirements in this general permit for this pollutant. For discharges from large construction activities located on the Edwards Aquifer contributing zone, applicants must also submit a copy of the NOI to the appropriate TCEQ regional office."

Counties:	Contact:
Comal, Bexar, Medina, Uvalde, and Kinney	TCEQ Water Program Manager San Antonio Regional Office 14250 Judson Rd. San Antonio, Texas (210) 490-3096
Williamson, Travis, and Hays	TCEQ Water Program Manager Austin Regional Office 1921 Cedar Bend Dr., Ste. 150 Austin, Texas (512) 339-2929.

6. Discharges to Specific Watersheds and Water Quality Areas

Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.

7. Protection of Streams and Watersheds by Other Governmental Entities

This general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities. For example, this permit does not limit the authority of a home-rule municipality provided by Section 401.002 of the Texas Local Government Code.

8. Indian Country Lands

Storm water runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of storm water require authorization under federal National Pollutant Discharge Elimination System (NPDES) regulations, authority for these discharges must be obtained from the U.S. Environmental Protection Agency (EPA).

9. Oil and Gas Production

Storm water runoff from construction activities associated with the exploration, development, or production of oil or gas or geothermal resources, including transportation of crude oil or natural gas by pipeline, are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges

of storm water require authorization under federal NPDES regulations, authority for these discharges must be obtained from the EPA.

10. Storm Water Discharges from Agricultural Activities

Storm water discharges from agricultural activities that are not point source discharges of storm water are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities.

Section C. Deadlines for Obtaining Authorization to Discharge

1. Large Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the issuance date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Operators of large construction activities continuing to operate after the issuance date of this permit, and authorized under NPDES general permit TXR100000 (issued July 6, 1998, FR 36490), must submit an NOI to obtain authorization under this general permit within 90 days of the issuance date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the federal NPDES permit. If the construction activity is completed prior to this 90-day deadline, and the site would otherwise qualify for termination of coverage under that federal NPDES permit, the operator must notify the executive director of the TCEQ in writing within 30 days of that condition.

2. Small Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the issuance date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Discharges from ongoing small construction activities that commenced prior to March 10, 2003, and that would not meet the conditions to qualify for termination of this permit as described in Part II.E. of this general permit, must be authorized, either under this general permit or a separate TPDES permit, prior to March 10, 2003.

Section D. Obtaining Authorization to Discharge

1. Small construction activities are determined to occur during periods of low potential for erosion, and operators of these sites may be automatically authorized under this general permit and not required to develop a storm water pollution prevention plan or submit a notice of intent (NOI), provided:

   (a) the construction activity occurs in a county listed in Appendix A;

   (b) the construction activity is initiated and completed, including either final or temporary stabilization of all disturbed areas, within the time frame identified in Appendix A for the location of the construction site;

   (c) all temporary stabilization is adequately maintained to effectively reduce or prohibit erosion, final stabilization activities have been initiated and a condition, of final stabilization is completed no later than 30 days following the end date of the time frame identified in Appendix A for the location of the construction site;

   (d) the permittee signs a completed construction site notice (Attachment 1 of this general permit), including the certification statement;

   (e) a signed copy of the construction site notice is posted at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and maintained in that location until completion of the construction activity;

   (f) a copy of the signed and certified construction site notice is provided to the operator of any municipal separate storm sewer system receiving the discharge at least two days prior to commencement of construction activities; and

   (g) any supporting concrete batch plant or asphalt batch plant is separately authorized for discharges of storm water runoff or other non-storm water discharges under an individual TPDES permit, another TPDES general permit or under an individual TCEQ permit where storm water and non-storm water is disposed of by evaporation or irrigation (discharges are adjacent to water in the state).

2. Operators of small construction activities not described in Part II.D.1. above may be automatically authorized under this general permit, and operators of these sites are not required to submit an NOI provided they:

   (a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant

is the operator, and implement that plan prior to commencing construction activities;

(b) sign a completed construction site notice (Attachment 2 of this general permit);

(c) post a signed copy of the construction site notice at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities, prior to commencing construction activities, and maintain the notice in that location until completion of the construction activity; and

(d) provide a copy of the signed and certified construction site notice to the operator of any municipal separate storm sewer system receiving the discharge at least two days prior to commencement of construction activities.

3. Operators of all other construction activities that qualify for coverage under this general permit must:

(a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant is the operator, and implement that plan prior to commencing construction activities;

(b) submit a Notice of Intent (NOI), using a form provided by the executive director, at least 2 days prior to commencing construction activities; or

(c) if the operator changes, or an additional operator is added after the initial NOI is submitted, the new operator must submit an NOI at least two (2) days before assuming operational control;

(d) post a copy of the NOI at the construction site in a location where it is readily available for viewing prior to commencing construction activities, and maintain the notice in that location until completion of the construction activity;

(e) provide a copy of the signed NOI to the operator of any municipal separate storm sewer system receiving the discharge, at least two (2) days prior to commencing construction activities; and

(f) implement the SWP3 prior to beginning construction activities.

4. Effective Date of Coverage

(a) Operators of construction activities described in either Part II. D.1. or D.2. are authorized immediately following compliance with the conditions of Part II. D.1. or D.2. that are applicable to the construction activity.

(b) Operators of all other construction activities eligible for coverage under this general permit, unless otherwise notified by the executive director, are provisionally authorized two (2) days from the date that a completed NOI is postmarked for delivery to the TCEQ. If electronic submission of the NOI is provided, and unless otherwise notified by the executive director, operators are provisionally authorized 24 hours following confirmation of receipt of the NOI by the TCEQ. Authorization is non-provisional when the executive director finds the NOI is administratively complete and an authorization number is issued for the activity.

(c) Operators are not prohibited from submitting late NOIs or posting late notices to obtain authorization under this general permit. The TCEQ reserves the right to take appropriate enforcement actions for any unpermitted activities that may have occurred between the time construction commenced and authorization is obtained.

5. Notice of Change (NOC) Letter

If the operator becomes aware that it failed to submit any relevant facts, or submitted incorrect information in an NOI, the correct information must be provided to the executive director in a NOC letter within 14 days after discovery. If relevant information provided in the NOI changes, a NOC letter must be submitted within 14 days of the change. A copy of the NOC must be provided to the operator of any MS4 receiving the discharge.

6. Signatory Requirement for NOI Forms, Notice of Termination (NOT) Forms, NOC Letters, and Construction Site Notices

NOI forms, NOT forms, NOC letters, and Construction Site Notices must be signed according to 30 TAC § 305.44 (relating to Application for Permit).

7. Contents of the NOI

The NOI form shall require, at a minimum, the following information:

(a) the name, address, and telephone number of the operator filing the NOI for permit coverage;

(b) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;

(c) number of acres that will be disturbed (estimated to the largest whole number);

(d) whether the project or site is located on Indian Country lands;

(e) confirmation that a SWP3 has been developed and that the SWP3 will be compliant with any applicable local sediment and erosion control plans; and

(f) name of the receiving water(s).

Section E. Application to Terminate Coverage

Each operator that has submitted an NOI for authorization under this general permit must apply to terminate that authorization following the conditions described in this section of the general permit. Authorization must be terminated by submitting a Notice of Termination (NOT) on a form supplied by the executive director. Authorization to discharge under this permit terminates at midnight on the day the NOT is postmarked for delivery to the TCEQ. If electronic submission of the NOT is provided, authorization to discharge under this permit terminates immediately following confirmation of receipt of the NOT by the TCEQ. Compliance with the conditions and requirements of this permit is required until an NOT is submitted.

1. Notice of Termination Required

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge, within thirty (30) days, after:

(a) final stabilization has been achieved on all portions of the site that is the responsibility of the permittee: or

(b) another permitted operator has assumed control over all areas of the site that have not been finally stabilized; and

(c) all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator if the new operator has sought permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

2. Minimum Contents of the NOT

The NOT form shall require, at a minimum, the following information:

(a) if authorization was granted following submission of a NOI, the permittees site-specific TPDES general permit number for the construction site;

(b) an indication of whether the construction activity is completed or if the permittee is simply no longer an operator at the site;

(c) the name, address and telephone number of the permittee submitting the NOT;

(d) the name (or other identifier), address, county, and latitude/longitude of the construction project or site; and

(e) a signed certification that either all storm water discharges requiring authorization under this general permit will no longer occur, or that the applicant to terminate coverage is no longer the operator of the facility or construction site, and that all temporary structural erosion controls have either been removed, will be removed on a schedule defined in the SWP3, or transferred to a new operator if the new operator has applied for permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

Section F. Waivers from Coverage

The executive director may waive the otherwise applicable requirements of this general permit for storm water discharges from small construction activities under the terms and conditions described in this section.

1. Waiver Applicability and Coverage

Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit where:

(a) the calculated rainfall erosivity R factor for the entire period of the construction project is less than five (5);

(b) the operator submits a signed waiver certification form, supplied by the executive director, certifying that the construction activity will commence and be completed within a period when the value of the calculated rainfall erosivity R factor is less than five (5); and

(c) the waiver certification form is submitted to the TCEQ at least two (2) days before construction activity begins.

2. Effective Date of Waiver

Operators of small construction activities are provisionally waived from the otherwise applicable requirements of this general permit two (2) days from the date that a completed waiver certification form is postmarked for delivery to TCEQ.

3. Activities Extending Beyond the Waiver Period

If a construction activity extends beyond the approved waiver period due to circumstances beyond the control of the operator, the operator must either:

(a) recalculate the rainfall erosivity factor R factor using the original start date and a new projected ending date, and if the R factor is still under five (5), submit a new waiver certification form at least two (2) days before the end of the original waiver period; or

(b) obtain authorization under this general permit according to the requirements delineated in either Part II.D.2. or Part II.D.3. at least two (2) days before the end of the approved waiver period.

Section G. Alternative TPDES Permit Coverage

1. Individual Permit Alternative

Any discharge eligible for coverage under this general permit may alternatively be authorized under an individual TPDES permit according to 30 TAC Chapter 305 (relating to Consolidated Permits). Applications for individual permit coverage should be submitted at least three hundred and thirty (330) days prior to commencement of construction activities to ensure timely issuance.

2. Individual Permit Required

The executive director may suspend an authorization or NOI in accordance with the procedures set forth in 30 TAC Chapter 205, including the requirement that the executive director provide written notice to the permittee. The executive director may require an operator of a construction site, otherwise eligible for authorization under this general permit, to apply for an individual TPDES permit because of:

(a) the conditions of an approved TMDL or TMDL implementation plan;

(b) the activity is determined to cause a violation of water quality standards or is found to cause, or contribute to, the loss of a designated use of surface water in the state: and

(c) any other considerations defined in 30 TAC Chapter 205 would include the provision at 30 TAC § 205.4(c)(3)(D), which allows TCEQ to deny authorization under the general permit and require an individual permit if a discharger "has been determined by the executive director to have been out of compliance with any rule, order, or permit of the commission, including non-payment of fees assessed by the executive director."

3. Any discharge eligible for authorization under this general permit may alternatively be authorized under a separate, applicable general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges).

Section H. Permit Expiration

This general permit shall be issued for a term not to exceed five (5) years. Following public notice and comment, as provided by 30 TAC § 205.3 (relating to Public Notice, Public Meetings, and Public Comment), the commission may amend, revoke, cancel, or renew this general permit. If the TCEQ publishes a notice of its intent to renew or amend this general permit before the expiration date, the permit will remain in effect for existing, authorized, discharges until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization.

In the event that the general permit is not renewed, discharges that are authorized under the general permit must obtain either a TPDES individual permit or coverage under an alternative general permit.

Part III. Storm Water Pollution Prevention Plans (SWP3)

Storm water pollution prevention plans must be prepared for storm water discharges that will reach Waters of the United States, including discharges to MS4 systems and privately owned separate storm sewer systems that drain to Waters of the United States, to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project. The SWP3 must describe and ensure the implementation of practices that will be used to reduce the pollutants in storm water discharges associated with construction activity at the construction site and assure compliance with the terms and conditions of this permit.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project provided reference is made to the other operators at the site. Where there is more than one SWP3 for a site, permittees must coordinate to ensure that BMPs and controls are consistent, and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWP3 is developed, or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure that compliance with the terms and conditions of this general permit is met in the areas of the construction site where that operator has operational control over construction plans and specifications or day-to-day operational control.

Section A. Shared SWP3 Development

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators must independently submit an NOI and obtain authorization, but may work together to prepare and implement a single comprehensive SWP3 for the entire construction site.

1. The SWP3 must clearly list the name and, for large construction activities, the general permit authorization numbers, for each operator that participates in the shared SWP3. Until the TCEQ responds to receipt of the NOI with a general permit authorization number, the SWP3 must specify the date that the NOI was submitted to TCEQ by each operator. Each participant in the shared plan must also sign the SWP3.

2. The SWP3 must clearly indicate which operator is responsible for satisfying each shared requirement of the SWP3. If the responsibility for satisfying a requirement is not described in the plan, then each permittee is entirely responsible for meeting the requirement within the boundaries of the construction site where they perform construction activities. The SWP3 must clearly describe responsibilities for meeting each requirement in shared or common areas.

Section B. Responsibilities of Operators

1. Operators with Control Over Construction Plans and Specifications

   All operators with operational control over construction plans and specifications to the extent necessary to meet the requirements and conditions of this general permit must:

   (a) ensure the project specifications allow or provide that adequate BMPs may be developed to meet the requirements of Part III of this general permit;

   (b) ensure that the SWP3 indicates the areas of the project where they have operational control over project specifications (including the ability to make modifications in specifications);

   (c) ensure all other operators affected by modifications in project specifications are notified in a timely manner such that those operators may modify best management practices as are necessary to remain compliant with the conditions of this general permit; and

   (d) ensure that the SWP3 for portions of the project where they are operators indicates the name and TPDES permit numbers for permittees with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. In the case that responsible parties have not been identified, the permittee with operational control over project specifications must be considered to be the responsible party until such time as the authority is transferred to another party and the plan is updated.

2. Operators with Day-to-Day Operational Control

Operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with a SWP3 and other permit conditions must:

(a) ensure that the SWP3 for portions of the project where they are operators meets the requirements of this general permit;

(b) ensure that the SWP3 identifies the parties responsible for implementation of best management practices described in the plan;

(c) ensure that the SWP3 indicates areas of the project where they have operational control over day-to-day activities;

(d) ensure that the SWP3 indicates, for areas where they have operational control over day-to-day activities, the name and TPDES permit number of the parties with operational control over project specifications (including the ability to make modifications in specifications).

Section C. Deadlines for SWP3 Preparation and Compliance

1. The SWP3 must be:

(a) completed prior to obtaining authorization under this general permit;

(b) implemented prior to commencing construction activities that result in soil disturbance;

(c) updated as necessary to reflect the changing conditions of new operators, new areas of responsibility, and changes in best management practices; and

(d) prepared so that it provides for compliance with the terms and conditions of this general permit.

Section D. Plan Review and Making Plans Available

1. The SWP3 must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or storm water management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site.

2. Operators of a large construction activity obtaining authorization to discharge through submission of a NOI must post a notice near the main entrance of the

construction site. If the construction project is a linear construction project (e.g. pipeline, highway, etc.), the notice must be placed in a publicly accessible location near where construction is actively underway. Notice for these linear sites may be relocated, as necessary, along the length of the project. The notice must be readily available for viewing by the general public, local, state, and federal authorities, and contain the following information:

(a) the TPDES general permit number for the project (or a copy of the NOI that was submitted to the TCEQ if a permit number has not yet been assigned);

(b) the name and telephone number of a representative for the operator;

(c) a brief description of the project; and

(d) the location of the SWP3.

3. This permit does not provide the general public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the general public access to a construction site.

Section E. Keeping Plans Current

The permittee must revise or update the storm water pollution prevention plan whenever:

1. there is a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3; or

2. results of inspections or investigations by site operators, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

Section F. Contents of SWP3

The SWP3 must include, at a minimum, the information described in this section.

1. A site description, or project description must be developed to include:

(a) a description of the nature of the construction activity, potential pollutants and sources;

(b) a description of the intended schedule or sequence of major activities that will disturb soils for major portions of the site;

(c) the total number of acres of the entire property and the total number of acres where construction activities will occur, including off-site material storage areas, overburden and stockpiles of dirt, and borrow areas;

(d) data describing the soil or the quality of any discharge from the site;

(e) a map showing the general location of the site (e.g. a portion of a city or county map);

(f) a detailed site map (or maps) indicating the following:

(i) drainage patterns and approximate slopes anticipated after major grading activities;

(ii) areas where soil disturbance will occur;

(iii) locations of all major structural controls either planned or in place;

(iv) locations where stabilization practices are expected to be used;

(v) locations of off-site material, waste, borrow, fill, or equipment storage areas;

(vi) surface waters (including wetlands) either adjacent or in close proximity; and

(vii) locations where storm water discharges from the site directly to a surface water body.

(g) the location and description of asphalt plants and concrete plants providing support to the construction site and authorized under this general permit;

(h) the name of receiving waters at or near the site that will be disturbed or that will receive discharges from disturbed areas of the project; and

(i) a copy of this TPDES general permit.

2. The SWP3 must describe the best management practices that will be used to minimize pollution in runoff. The description must identify the general timing or sequence for implementation. At a minimum, the description must include the following components:

(a) Erosion and Sediment Controls

(i) Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local

topography, soil type, and rainfall. Controls must also be designed and utilized to reduce the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

(ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications. If periodic inspections or other information indicates a control has been used incorrectly, or that the control is performing inadequately, the operator must replace or modify the control as soon as practicable after discovery that the control has been used incorrectly, is performing inadequately, or is damaged.

(iii) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%.

(iv) If sediment escapes the site, accumulations must be removed at a frequency to minimize further negative effects, and whenever feasible, prior to the next rain event.

(v) Controls must be developed to limit, to the extent practicable, offsite transport of litter, construction debris, and construction materials.

(b) Stabilization Practices

The SWP3 must include a description of interim and permanent stabilization practices for the site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where it is possible.

(i) Stabilization practices may include but are not limited to: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, and other similar measures.

(ii) The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties in Part III.D.1 of this general permit:

(a) the dates when major grading activities occur;

(b) the dates when construction activities temporarily or permanently cease on a portion of the site; and

(c) the dates when stabilization measures are initiated.

(iii) Stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in (a) through (c) below, must be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased.

(a) Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

(b) Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of site.

(c) In arid areas (areas with an average rainfall of 0 to 10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

3. Structural Control Practices

The SWP3 must include a description of any structural control practices used to divert flows away from exposed soils, to limit the contact of runoff with disturbed areas, or to lessen the off-site transport of eroded soils.

(a) Sediment basins are required, where feasible for common drainage locations that serve an area with ten (10) or more acres disturbed at one time, a temporary (or permanent) sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. Where rainfall data is not available or a calculation cannot be performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained is required where attainable until final stabilization of the site. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone final stabilization, if

these flows are diverted around both the disturbed areas of the site and the sediment basin. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area on site, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater and other similar considerations. Where sediment basins are not feasible, equivalent control measures , which may include a series of smaller sediment basins, must be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area.

(b) Sediment traps and sediment basins may also be used to control solids in storm water runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction. Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained, or equivalent control measures, may be provided or where rainfall data is not available or a calculation cannot be performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained may be provided.

4. Permanent Storm Water Controls

A description of any measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWP3. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site or prior to submission of an NOT.

5. Other Controls

(a) Off-site vehicle tracking of sediments and the generation of dust must be minimized.

(b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to reduce pollutants from these materials.

(c) The SWP3 must include a description of pollutant sources from areas other than construction (including storm water discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

(d) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide a non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

6. Approved State and Local Plans

(a) Permittees must ensure the SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by federal, state, or local officials.

(b) SWP3s must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or storm water management site plans or site permits approved by state or local official for which the permittee receives written notice.

7. Maintenance

All erosion and sediment control measures and other protective measures identified in the SWP3 must be maintained in effective operating condition. If through inspections the permittee determines that BMPs are not operating effectively, maintenance must be performed before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

8. Inspections of Controls

In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable

(a) Personnel provided by the permittee and familiar with the SWP3 must inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion control measures identified in the SWP3 must be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every fourteen (14) calendar days and within twenty four (24) hours of the end of a storm event of 0.5 inches or greater.

Where sites have been finally or temporarily stabilized, where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches), inspections must be conducted at least once every month.

As an alternative to the above-described inspection schedule of once every fourteen (14) calendar days and within twenty four (24) hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur on a specifically defined day, regardless of whether or not there has been a rainfall event since the previous inspection.

(b) Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described in Part III.F.8.(a) above. Inspection of these areas could require that vehicles compromise temporarily or even permanently stabilized areas, cause additional disturbance of soils, and increase the potential for erosion. In these circumstances, controls must be inspected at least once every fourteen (14) calendar days and within twenty four (24) hours of the end of a storm event of 0.5 inches, but representative inspections may be performed. For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described in Part III.F.8.(a) above. The conditions of the controls along each inspected 0.25 mile segment may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile segment to either the end of the next 0.25 mile inspected segment, or to the end of the project, whichever occurs first.

As an alternative to the above-described inspection schedule of once every fourteen (14) calendar days and within twenty four (24) hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur on a specifically defined day, regardless of whether or not there has been a rainfall event since the previous inspection.

(c) The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever

possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

(d) A report summarizing the scope of the inspection, names and qualifications of personnel making the inspection, the dates of the inspection, and major observations relating to the implementation of the SWP3 must be made and retained as part of the SWP3. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

Actions taken as a result of inspections must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports)

9. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-storm water components of the discharge.

Part IV. Numeric Effluent Limitations

Section A. Limitations

All discharges of storm water runoff from concrete batch plants that qualify for coverage, and that are authorized to discharge storm water under the provisions of this general permit must be monitored at the following monitoring frequency and comply with the following numeric effluent limitations:

	Limitations	Monitoring
Parameter	Daily Maximum	Frequency
Total Suspended Solids	65 mg/l	1/Year*
Oil and Grease	15 mg/l	1/Year*
pH	between 6 and 9 standard units	1/Year*

* If discharge occurs.

Section B. Reporting Requirements

Results of monitoring for determining compliance with numeric effluent limitations must be recorded on a discharge monitoring report (DMR). The DMR must either be an original EPA No. 3320-1 form (Attachment 3 of this general permit), a duplicate of the form, or as otherwise provided by the executive director. Monitoring must be conducted prior to December 31st for each annual

monitoring period. A copy of the DMR must either be retained at the facility or shall be made readily available for review by authorized TCEQ personnel upon request, by March 31st following the end of each annual monitoring period. If the results indicate the violation of one or more of these numeric limitations, the permittee must also submit the DMR to the TCEQ's Information Resources Center (MC 212) by March 31st of each annual monitoring period.

Part V. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required by Part II.D. For activities that are not required to submit an NOT, records shall be retained for a minimum period of three (3) years from the date that either: final stabilization has been achieved on all portions of the site that is the responsibility of the permittee; or another permitted operator has assumed control according to over all areas of the site that have not been finally stabilized. Records include:

1. A copy of the SWP3 plan.
2. All reports and actions required by this permit, including a copy of the construction site notice.
3. All data used to complete the NOI, if an NOI is required for coverage under this general permit.

Part VI. Standard Permit Conditions

1. The permittee has a duty to comply with all permit conditions. Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued, and is grounds for enforcement action, for terminating coverage under this general permit, or for requiring a discharger to apply for and obtain an individual TPDES permit.

2. Authorization under this general permit may be suspended or revoked for cause. Filing a notice of planned changes or anticipated non-compliance by the permittee does not stay any permit condition. The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for revoking, suspending, or terminating authorization under this permit. Additionally, the permittee must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of this general permit.

3. It is not a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.

4. Inspection and entry shall be allowed under Texas Water Code Chapters 26-28, Health and Safety Code §§ 361.032-361.033 and 361.037, and 40 Code of Federal Regulations (CFR) §122.41(i). The statement in Texas Water Code § 26.014 that commission entry of a facility shall occur according to an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the

facility or site, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.

5. The discharger is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code §§ 26.136, 26.212, and 26.213 for violations including but not limited to the following:

   a. negligently or knowingly violating CWA, §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under CWA, § 402, or any requirement imposed in a pretreatment program approved under CWA, §§ 402(a)(3) or 402(b)(8);

   b. knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance.

6. All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

7. Authorization under this general permit does not convey property or water rights of any sort and does not grant any exclusive privilege.

Part VII. Fees

Section A. Application Fees

An application fee of $100 must be submitted with each NOI for coverage of a large construction activity. A fee is not required for submission of an NOT or NOC letter.

Section B. Water Quality Fees

Large construction activities authorized under this general permit must pay an annual Water Quality Fee of $100 under Texas Water Code 26.0291 and according to TAC Chapter 205 (relating to General Permits for Waste Discharges).

Appendix A.
Periods of Low Erosion Potential by County

Start Date - End Date
Dec. 15 - Feb. 14
Archer
Baylor
Brown
Callahan
Childress
Coke
Coleman
Concho
Cottle
Dimmit
Eastland
Edwards
Fisher
Foard
Hardeman
Haskell
Irion
Jones
Kerr
Kimble
King
Kinney
Knox
Mason
Maverick
McCulloch
Menard
Nolan
Real
Runnels
Schleicher
Shackelford
Stephens
Stonewall
Sutton
Taylor
Throckmorton
Tom Green
Uvalde
Wichita
Wilbarger
Young
Zavala

Start Date - End Date
Nov. 15 - Apr. 30
Andrews
Armstrong
Borden
Brewster
Briscoe
Carson
Castro
Crane
Crosby
Dawson
Deaf Smith
Ector
Floyd
Gaines
Garza
Glasscock
Hale
Hansford
Hartley
Howard
Hutchinson
Lubbock
Lynn
Martin
Midland
Mitchell
Moore
Oldham
Pecos
Potter
Randall
Reagan
Scurry
Sherman
Sterling
Swisher
Terrell
Terry
Upton

Start Date - End Date
Feb. 1 - Mar. 30
Hall

Start Date - End Date
Nov. 15 - Jan. 14 or **Feb. 1 - Mar. 30**
Crockett
Dickens
Kent
Motley
Val Verde

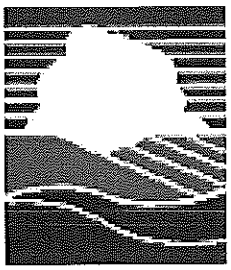
Start Date - End Date
Nov. 1 - Apr. 14 or **Nov. 15 - Apr. 30**
Dallam
Hockley
Lamb
Parmer
Ward

Start Date - End Date
Nov. 1 - Apr. 30 or **Nov. 15 - May. 14**
Bailey
Cochran
Jeff Davis
Loving
Presidio
Reeves
Winkler
Yoakum

Start Date - End Date
Nov. 1 - May. 14
Culberson
Hudspeth

Start Date - End Date
Jan. 1 - Jul. 14 or **May. 15 - Jul. 31** or
Jun. 1 - Aug. 14 or **Jun. 15 - Sept. 14** or
Jul. 1 - Oct. 14 or **Jul. 15 - Oct. 31** or
Aug. 1 - Apr. 30 or **Aug. 15 - May. 14** or
Sept. 1 - May. 30 or **Oct. 1 - Jun. 14** or
Nov. 1 - Jun. 30 or **Nov. 15 - Jul. 14**
El Paso

Start Date - End Date
Jan. 1 - Mar. 30 or **Dec. 1 - Feb. 28**
Collingsworth Wheeler
Donley
Gray
Hemphill
Lipscomb
Ochiltree
Roberts



CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

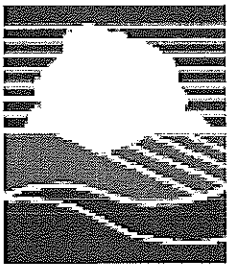
The following information is posted in compliance with **Part II.D.1.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	

For Construction Sites Authorized Under Part II.D.1. the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization by waiver under Part II.D.1. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. Construction activities at this site shall occur within a time period listed in Appendix A of the TPDES general permit for this county, that period beginning on _____and ending on _____. I understand that if construction activities continue past this period, all storm water runoff must be authorized under a separate provision of this general permit. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature and Title Date



CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	
Project Description: ((Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	
Location of Storm Water Pollution Prevention Plan :	

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature and Title Date

CONCRETE BATCH FACILITIES

STW/ TXR15_____/ CO

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME

ADDRESS

FACILITY LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

NOTE: Enter your permit number in the underlined space in the upper right hand corner of this page. Example: STW/TXR15 00123/ CO

Mail to: TCEQ (MC 212)
P.O. Box 13087
Austin, TX 78711-3087

(2-16) PERMIT NUMBER	(17-19) DISCHARGE NUMBER

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
	01	01		12	31
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

☐

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Total Suspended Solids	SAMPLE MEASUREMENT	*******	*******	*******	*******	*******		mg/l			
	SAMPLE REQUIREMENT	*******	*******	*******	*******	*******	65 Daily Max			1/Year	Grab
Oil & Grease	SAMPLE MEASUREMENT	*******	*******	*******	*******	*******		mg/l			
	SAMPLE REQUIREMENT	*******	*******	*******	*******	*******	15 Daily Max			1/Year	Grab
pH	SAMPLE MEASUREMENT	*******	*******	*******	*******	*******		S.U.			
	SAMPLE REQUIREMENT	*******	*******	*******	*******	*******	6.0 - 9.0 Range			1/Year	Grab
	SAMPLE MEASUREMENT										
	SAMPLE REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
	I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.						
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Appendix J

Endangered Species and Historical Places

Endangered Species and Historical Places Certification

Impact on Endangered Species

The list of possible threatened and endangered species is attached. A review of the site found no evidence that this project will have an adverse impact on any listed threatened or endangered plant or animal species.

Impact on Historical Places

The list of sites registered with the National Register of Historic Places is attached. A review of the site found no evidence that this project will have an adverse impact on any historic site listed on the National Register of Historic Sites.

Signature: Ronnie Brock

Printed Name: Ronnie D. Brock, Vice President

Company Name: Storm Water Solutions

Date: 1-8-07

Certifying SWPPP for:

Addison Road Paving and Drainage
Phase I
From Belt Line Road to Arapaho Road

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are specific penalties for submitting false information, including the possibilities of fine and imprisonment for knowing violations."

Owners/ Operators Certification

Owner: TOWN OF ADDISON

By: [signature] Title: ASST. DIR OF PUBLIC WORKS Date: 1/30/07

Printed Name: AARON RUSSELL

Contractor / Operators Certification

Contractor: JRJ PAVING, L.P.

By: [signature] Title: Business Manager Date: 1-11-07

Printed Name: Marty Murphy

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for Texas:

Counties Selected: Dallas

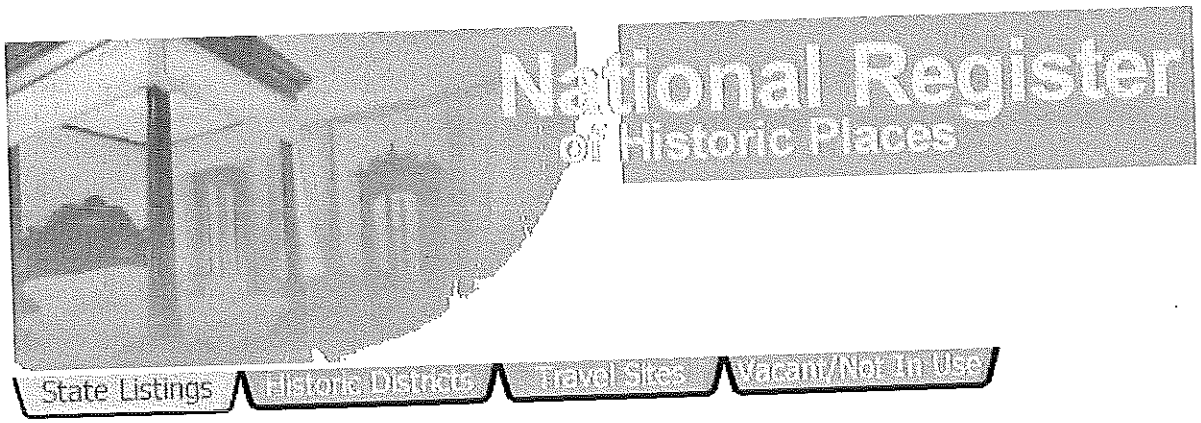
Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

Dallas County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
bald eagle	*Haliaeetus leucocephalus*	Birds	AD, T				P
black-capped Vireo	*Vireo atricapilla*	Birds	E				P
golden-cheeked warbler (=wood)	*Dendroica chrysoparia*	Birds	E				P
least tern	*Sterna antillarum*	Birds	E				P
piping Plover	*Charadrius melodus*	Birds	E, T				P



TEXAS - Dallas County

Alcalde Street--Crockett School Historic District (added 1995 - **District** - #95000330)
200--500 Alcalde, 421--421A N. Carroll and 4315 Victor, Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Bulger, C.W.
Architectural Style: Bungalow/Craftsman, Queen Anne, Colonial Revival
Area of Significance: Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private , Local Gov't**
Historic Function: Domestic, Education
Historic Sub-function: School, Single Dwelling
Current Function: Domestic, Education
Current Sub-function: School, Single Dwelling

Angle, D. M., House (added 1985 - **Building** - #85000710)
800 Beltline, Cedar Hill

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Late Victorian
Area of Significance: Architecture
Period of Significance: 1875-1899
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

Belo, Alfred Horatio, House (added 1975 - **Building** - #75001965)
2115 Ross Ave., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Other, Classical Revival
Area of Significance: Architecture, Communications

Period of Significance: 1875-1899
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Vacant/Not In Use

Bianchi, Didaco and Ida, House (added 1995 - **Building** - #95000311)
Also known as **Phase IV--East Dallas DAL/DA 599**
4503 Reiger Ave., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Lang & Witchell
Architectural Style: Mission/Spanish Revival
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

Bryan--Peak Commercial Historic District (added 1995 - **District** - #95000327)
4214--4311 Bryan Ave. and 1325--1408 N. Peak, Dallas

Historic Significance: Architecture/Engineering, Event
Area of Significance: Architecture, Commerce
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade, Government, Recreation And Culture
Historic Sub-function: Business, Department Store, Post Office, Specialty Store, Theater
Current Function: Commerce/Trade, Government, Vacant/Not In Use
Current Sub-function: Business, Correctional Facility, Specialty Store

Bryant, William, Jr., House (added 1985 - **Building** - #85000711)
S. Broad and Cooper, Cedar Hill

Historic Significance: Person, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Late Victorian
Historic Person: Bryant,William,Jr.
Significant Year: 1889
Area of Significance: Architecture, Commerce
Period of Significance: 1875-1899
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling

Current Function: Domestic
Current Sub-function: Single Dwelling

Busch Building (added 1980 - **Building** - #80004489)
Also known as **Kirby Building**
1501--1509 Main St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Lang & Witchell, Barnett,Hayes & Barnett
Architectural Style: Skyscraper, Late Gothic Revival
Area of Significance: Architecture, Commerce
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Commerce/Trade
Historic Sub-function: Department Store
Current Function: Commerce/Trade

Busch--Kirby Building (Boundary Increase) (added 1996 - **Building** - #96001015)
Also known as **Kirby Building;A. Harris and Co.;See Also:Busch Building**
1501--1509 Main St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Lang & Witchell
Architectural Style: Late Gothic Revival, Art Deco
Area of Significance: Commerce, Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade
Historic Sub-function: Business, Department Store
Current Function: Vacant/Not In Use

Cedar Springs Place *** (added 1991 - **District** - #91001901)
2531 Lucas Dr., Dallas

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Centennial Architects, Sharp,Walter
Architectural Style: International Style
Area of Significance: Architecture, Social History, Community Planning And Development
Period of Significance: 1925-1949
Owner: **Local Gov't**
Historic Function: Domestic
Historic Sub-function: Institutional Housing
Current Function: Domestic
Current Sub-function: Institutional Housing

Central Congregational Church (added 1995 - **Building** - #95000307)
Also known as **Phase IV--East Dallas DAL/DA 96**

1530 N. Carroll, Dallas

Historic Significance: Architecture/Engineering
Architectural Style: Late Gothic Revival
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Religion
Historic Sub-function: Religious Structure
Current Function: Religion
Current Sub-function: Religious Structure

Chevrolet Motor Company Building (added 2003 - **Building** - #03000277)
3221 Commerce, Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Lang and Witchell, Hughes-O'Rourke Construction Co.
Architectural Style: Early Commercial
Area of Significance: Architecture, Industry
Period of Significance: 1900-1924, 1925-1949, 1950-1974
Owner: **Private**
Historic Function: Government, Industry/Processing/Extraction
Historic Sub-function: Government Office, Manufacturing Facility
Current Function: Domestic
Current Sub-function: Multiple Dwelling

Claremont Apartments (added 1995 - **Building** - #95000313)
Also known as **Phase IV--East Dallas DAL/DA 186**
4636 Ross Ave., Dallas

Historic Significance: Architecture/Engineering
Architectural Style: Mission/Spanish Revival
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Multiple Dwelling
Current Function: Domestic
Current Sub-function: Multiple Dwelling

Clements Hall ** (added 1980 - **Building** - #80004087)
3200 Dyer St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Shepley,Rutan & Coolidge
Architectural Style: Other, Colonial Revival
Area of Significance: Architecture, Education, Community Planning And Development
Period of Significance: 1900-1924
Owner: **Private**

Historic Function: Education
Historic Sub-function: College
Current Function: Education
Current Sub-function: College

Colonial Hill Historic District (added 1995 - **District** - #95000334)
Bounded by Pennsylvania Ave., I-45, US 75 and Hatcher, Dallas

Historic Significance: Event, Architecture/Engineering
Architectural Style: Classical Revival, Bungalow/Craftsman
Area of Significance: Community Planning And Development, Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade, Domestic
Historic Sub-function: Business, Single Dwelling
Current Function: Commerce/Trade, Domestic
Current Sub-function: Business, Single Dwelling

Continental Gin Company (added 1983 - **Building** - #83003134)
3301-3333 Elm St., 212 and 232 Trunk Ave., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Buchannon and Guessler, Stevenson,D.L.
Architectural Style: Early Commercial
Area of Significance: Invention, Architecture, Industry, Commerce
Period of Significance: 1875-1899, 1900-1924
Owner: **Private**
Historic Function: Commerce/Trade, Industry/Processing/Extraction
Historic Sub-function: Manufacturing Facility, Warehouse
Current Function: Commerce/Trade, Industry/Processing/Extraction
Current Sub-function: Manufacturing Facility, Warehouse

Dallas County Courthouse ** (added 1976 - **Building** - #76002019)
Houston and Commerce Sts., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Orlopp & Kusener
Architectural Style: Romanesque
Area of Significance: Architecture
Period of Significance: 1875-1899
Owner: **Local Gov't**
Historic Function: Government
Historic Sub-function: Courthouse
Current Function: Government

Dallas Downtown Historic District (added 2004 - **District** -

#04000894)
Roughly bounded by Federal, N. St. Paul, Pacific, Harwood, S. Pearl, Commerce, S Ervay, Akard, Commerce and Field, Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: et.al., Ahlschlager, Walter
Architectural Style: Late Victorian, Late 19th And 20th Century Revivals
Area of Significance: Community Planning And Development, Architecture, Commerce
Period of Significance: 1875-1899, 1900-1924, 1925-1949, 1950-1974
Owner: **Private , Local Gov't**
Historic Function: Commerce/Trade, Government, Landscape, Recreation And Culture
Historic Sub-function: Business, City Hall, Financial Institution, Park, Plaza, Post Office, Theater
Current Function: Commerce/Trade, Government, Landscape, Recreation And Culture, Religion, Vacant/Not In Use, Work In Progress
Current Sub-function: Business, City Hall, Financial Institution, Park, Plaza, Religious Structure, Theater

Dallas Fire Station No. 16 (added 1997 - **Building** - #97000363)
5501 Columbia Ave., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Johnson,G.G., Overbeck,H.A.
Architectural Style: Prairie School, Mission/Spanish Revival
Area of Significance: Architecture, Community Planning And Development
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Government
Historic Sub-function: Fire Station
Current Function: Recreation And Culture
Current Sub-function: Museum

Dallas Hall (added 1978 - **Building** - #78002913)
Southern Methodist University campus, Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Shepley,Rutan & Coolidge
Architectural Style: Other, Colonial Revival
Area of Significance: Architecture, Education
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Education
Historic Sub-function: College
Current Function: Education
Current Sub-function: College

Dallas High School Historic District (added 1996 - **District** -

#96000035)
Also known as **Dallas Technical High School;Norman Robert Crozier Technical**
2218 Bryan St., Dallas

Historic Significance: Event
Area of Significance: Education
Period of Significance: 1900-1924, 1925-1949, 1950-1974
Owner: **Local Gov't**
Historic Function: Education
Historic Sub-function: School
Current Function: Vacant/Not In Use

Dallas National Bank (added 2005 - **Building** - #05000419)
1530 Main and 1511 Commerce St., Dallas

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Coburn, Smith & Evans, Hexter & Chambers
Architectural Style: Gothic Revival, Skyscraper
Area of Significance: Economics, Architecture
Period of Significance: 1925-1949, 1950-1974
Owner: **Private** ,
Historic Function: Commerce/Trade
Historic Sub-function: Business
Current Function: Work In Progress

Dallas Scottish Rite Temple (added 1980 - **Building** - #80004088)
Harwood and Young Sts., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Hubble,B.H., Greene,H.M.
Architectural Style: Beaux Arts
Area of Significance: Architecture, Social History
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Social
Historic Sub-function: Clubhouse
Current Function: Social
Current Sub-function: Clubhouse

Dallas Tent and Awning Building (added 1999 - **Building** - #99001292)
Also known as **Murray Building**
3401 Commerce St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Jordon, J.M.
Architectural Style: Early Commercial
Area of Significance: Architecture, Industry
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**

Historic Function: Industry/Processing/Extraction
Historic Sub-function: Manufacturing Facility
Current Function: Domestic
Current Sub-function: Multiple Dwelling

Dallas Union Terminal ** (added 1975 - **Building** - #75001966)

400 S. Houston St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Hunt,Jarvis
Architectural Style: Beaux Arts
Area of Significance: Architecture, Transportation
Period of Significance: 1900-1924
Owner: **Local Gov't**
Historic Function: Transportation
Historic Sub-function: Rail-Related
Current Function: Transportation
Current Sub-function: Rail-Related

DeGolyer Estate ** (added 1978 - **Building** - #78002914)
Also known as **Everette DeGolyer House (Rancho Encinal)**
8525 Garland Rd., Dallas

Historic Significance: Person, Event, Architecture/Engineering
Architect, builder, or engineer: Schutt,Burton, Scott,Denman
Architectural Style: Mission/Spanish Revival, Other
Historic Person: DeGolyer,Everette
Significant Year: 1940, 1938
Area of Significance: Architecture, Science, Landscape Architecture
Period of Significance: 1925-1949
Owner: **Local Gov't**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Landscape
Current Sub-function: Park

Dealey Plaza Historic District *** (added 1993 - **District** - #93001607)
Roughly bounded by Pacific Ave., Market St., Jackson St. and right of way of Dallas Right of Way Management Company, Dallas

Historic Significance: Person, Event, Architecture/Engineering
Architect, builder, or engineer: Multiple
Architectural Style: Romanesque, Early Commercial, Chicago
Historic Person: Kennedy,John F.,et al.
Significant Year: 1963
Area of Significance: Politics/Government, Landscape Architecture, Architecture

Period of Significance: 1875-1899, 1900-1924, 1925-1949, 1950-1974
Owner:
Historic Function: Domestic, Government, Landscape
Historic Sub-function: Government Office, Plaza, Single Dwelling
Current Function: Domestic, Government, Landscape
Current Sub-function: Government Office, Plaza, Single Dwelling

Dixon--Moore House (added 1995 - **Building** - #95000320)
Also known as **Phase IV--East Dallas DAL/DA 96 (South)**
2716 Peabody, Dallas

Historic Significance: Architecture/Engineering
Architectural Style: Other
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

Ellis, James H. and Molly, House (added 1995 - **Building** - #95000323)
Also known as **Phase IV--East Dallas DAL/DA 1302**
2426 Pine, Dallas

Historic Significance: Architecture/Engineering
Architectural Style: Other
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Secondary Structure, Single Dwelling
Current Function: Domestic
Current Sub-function: Secondary Structure, Single Dwelling

Emanuel Lutheran Church (added 1995 - **Building** - #95000315)
Also known as **Phase IV--East Dallas DAL/DA 194**
4301 San Jacinto, Dallas

Historic Significance: Architecture/Engineering
Architectural Style: Late Gothic Revival
Area of Significance: Architecture
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Religion
Historic Sub-function: Religious Structure
Current Function: Religion
Current Sub-function: Religious Structure

Fannin, James W., Elementary School (added 1995 - **Building** - #95000314)
Also known as **Phase IV--East Dallas DAL/DA 185**
4800 Ross Ave., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Lang & Witchell
Architectural Style: Late Gothic Revival
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Education
Historic Sub-function: School
Current Function: Education
Current Sub-function: School

Florence, Fred, Hall ** (added 1980 - **Building** - #80004089)
3330 University Blvd., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: DeWitt & Lemmon
Architectural Style: Other, Colonial Revival
Area of Significance: Architecture, Education, Community Planning And Development
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Education
Historic Sub-function: College
Current Function: Education
Current Sub-function: College

Forest Avenue High School, Old (added 1995 - **Building** - #95000318)
Also known as **Madison,James,High School;Phase IV--East Dallas DAL/DA 49**
3000 Martin Luther King, Jr., Blvd., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Ittner, W.P.
Architectural Style: Renaissance
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Education
Historic Sub-function: School
Current Function: Education
Current Sub-function: School

G & J Manufacturing (added 2002 - **Building** - #02000992)
3912 Willow St., Dallas

Historic Significance: Event
Area of Significance: Industry, Education

Period of Significance: 1925-1949, 1950-1974
Owner: **Private**
Historic Function: Industry/Processing/Extraction
Historic Sub-function: Manufacturing Facility
Current Function: Commerce/Trade
Current Sub-function: Business

Gilbert, Samuel and Julia, House (added 1988 - **Building** - #88002063)
Also known as **The Gilbert Homestead;The Old Rock House**
2540 Farmers Branch Ln., Farmers Branch

Historic Significance: Information Potential, Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Greek Revival, Other
Area of Significance: Architecture, Historic - Non-Aboriginal
Cultural Affiliation: Anglo-American
Period of Significance: 1850-1874, 1875-1899, 1900-1924, 1925-1949
Owner: **Local Gov't**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Landscape, Recreation And Culture
Current Sub-function: Museum, Park

Goodyear Tire and Rubber Company Building and B.F. Goodrich Building (added 2002 - **Building** - #02000009)
Also known as **Howard R. Wolf Building**
2809 Parry Ave. and 4136-40 Commerce St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: F.J. Woerner & Company
Architectural Style: Chicago
Area of Significance: Industry, Architecture
Period of Significance: 1925-1949, 1950-1974
Owner: **Private**
Historic Function: Agriculture/Subsistence, Commerce/Trade
Historic Sub-function: Business, Warehouse
Current Function: Commerce/Trade, Domestic
Current Sub-function: Multiple Dwelling, Professional

Grace Methodist Episcopal Church (added 1982 - **Building** - #82001736)
Also known as **Grace United Methodist Church**
4105 Junius St., Dallas

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Caan,W. A.
Architectural Style: Gothic Revival
Area of Significance: Religion, Architecture
Period of Significance: 1900-1924, 1925-1949

Owner: **Private**
Historic Function: Religion
Historic Sub-function: Religious Structure
Current Function: Religion
Current Sub-function: Religious Structure

Greer, George C., House (added 1997 - **Building** - #96001563)
Also known as **Greer-Saner-McCutcheon House;See also:Swiss Avenue Historic**
5439 Swiss Ave., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Thompson, Hal B.
Architectural Style: Colonial Revival
Area of Significance: Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Secondary Structure, Single Dwelling
Current Function: Domestic
Current Sub-function: Secondary Structure, Single Dwelling

Harlan Building (added 2004 - **Building** - #04000102)
2018 Cadiz St., Dallas

Historic Significance: Event
Area of Significance: Commerce
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade
Historic Sub-function: Warehouse
Current Function: Work In Progress

Hawkes, Z. T. (Tip), House (added 1985 - **Building** - #85000712)
132 N. Potter St., Cedar Hill

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Other
Area of Significance: Architecture
Period of Significance: 1875-1899
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Secondary Structure, Single Dwelling
Current Function: Domestic
Current Sub-function: Secondary Structure, Single Dwelling

Highland Park Shopping Village *** (added 1997 - **Building** - #97001393)
Also known as **Highland Park Village**
Jct. of Preston Rd. and Mockingbird Ln., Highpark

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: multiple
Architectural Style: Colonial Revival, Mission/Spanish Revival
Area of Significance: Commerce, Community Planning And Development, Architecture
Period of Significance: 1925-1949, 1950-1974
Owner: **Private**
Historic Function: Commerce/Trade
Historic Sub-function: Department Store, Specialty Store
Current Function: Commerce/Trade
Current Sub-function: Department Store, Specialty Store

Hilton Hotel (added 1985 - **Building** - #85003092)
Also known as **Plaza Hotel**
1933 Main St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: McKenzie Const., Lang & Witchell
Architectural Style: Beaux Arts
Area of Significance: Architecture, Commerce
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Hotel
Current Function: Domestic
Current Sub-function: Hotel

Hotel Adolphus ** (added 1983 - **Building** - #83003133)
Also known as **Adolphus Hotel**
1315 Commerce St., Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Barnett,Tom P., Barnett,Haynes and Barnett
Architectural Style: Beaux Arts
Area of Significance: Architecture, Social History
Period of Significance: 1900-1924
Owner: **Private**
Historic Function: Commerce/Trade, Domestic
Historic Sub-function: Hotel, Specialty Store
Current Function: Commerce/Trade

Houston Street Viaduct (added 1984 - **Structure** - #84001641)
Also known as **Dallas-Oak Cliff Viaduct**
Houston St. roughly between Arlington St. and Lancaster Ave., Dallas

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Hedrick & Cochrane, Corrigan,Lee,& Halpin
Area of Significance: Engineering, Transportation
Period of Significance: 1900-1924

Owner: **Local Gov't**
Historic Function: Transportation
Historic Sub-function: Road-Related
Current Function: Transportation
Current Sub-function: Road-Related

Hyer Hall ** (added 1980 - **Building** - #80004090)
6424 Hill Lane, Dallas

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Hill,C.D., & Co.
Architectural Style: Other, Colonial Revival
Area of Significance: Architecture, Education
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Education
Historic Sub-function: College
Current Function: Education
Current Sub-function: College

Interstate Forwarding Company Warehouse (added 1992 - **Building** - #92000021)
3200 Main St., Dallas

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Unknown
Architectural Style: Chicago, Other
Area of Significance: Architecture, Commerce, Transportation
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade, Transportation
Historic Sub-function: Rail-Related, Warehouse
Current Function: Commerce/Trade, Domestic, Recreation And Culture
Current Sub-function: Business, Multiple Dwelling, Professional, Theater

Kessler Park Historic District (added 1994 - **District** - #94000607)
Roughly bounded by Kidd Springs, Stewart, Oak Cliff, Plymouth, I-30, Turner, Colorado and Sylvan, Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Tudor Revival, Bungalow/Craftsman, Mission/Spanish Revival
Area of Significance: Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Domestic, Landscape
Historic Sub-function: Park, Single Dwelling
Current Function: Domestic, Landscape
Current Sub-function: Park, Single Dwelling

Kessler Park Historic District (Boundary Increase) (added 1995 - **District** - #95001087)
Bounded by Turner, Colorado, Sylvan and Salmon, Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Tudor Revival, Mission/Spanish Revival, Bungalow/Craftsman
Area of Significance: Architecture
Period of Significance: 1925-1949
Owner: **Private**
Historic Function: Domestic
Historic Sub-function: Single Dwelling
Current Function: Domestic
Current Sub-function: Single Dwelling

King's Highway Historic District (added 1994 - **District** - #94000606)
900--1500 Blocks of King's Highway between W. Davis St. and Montclair Ave., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Other, Bungalow/Craftsman
Area of Significance: Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade, Domestic
Historic Sub-function: Multiple Dwelling, Single Dwelling, Specialty Store
Current Function: Commerce/Trade, Domestic
Current Sub-function: Multiple Dwelling, Single Dwelling, Specialty Store

Lake Cliff Historic District (added 1994 - **District** - #94000609)

Roughly bounded by E. 6th St., Beckley Ave., Zangs Blvd. and Marsalis Ave., Dallas

Historic Significance: Architecture/Engineering, Event
Architect, builder, or engineer: Williams, Robert C., Hecht, Albert S.
Architectural Style: Late 19th And 20th Century Revivals, Late 19th And Early 20th Century American Movements, Other
Area of Significance: Community Planning And Development, Architecture
Period of Significance: 1875-1899, 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Domestic, Landscape
Historic Sub-function: Multiple Dwelling, Park, Single Dwelling
Current Function: Domestic, Landscape
Current Sub-function: Multiple Dwelling, Park, Single Dwelling

Lancaster Avenue Commercial Historic District (added 1994 - **District** - #94000605)
Roughly bounded by E. Jefferson Blvd., S. Marsalis, E. 10th St., E. 9th St. and N. Lancaster Ave., Dallas

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Unknown
Architectural Style: Other
Area of Significance: Architecture
Period of Significance: 1900-1924, 1925-1949
Owner: **Private**
Historic Function: Commerce/Trade
Historic Sub-function: Specialty Store
Current Function: Commerce/Trade
Current Sub-function: Specialty Store

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