

CONTRACT DOCUMENTS
FOR
CONSTRUCTION OF THE

HIKE & BIKE TRAIL

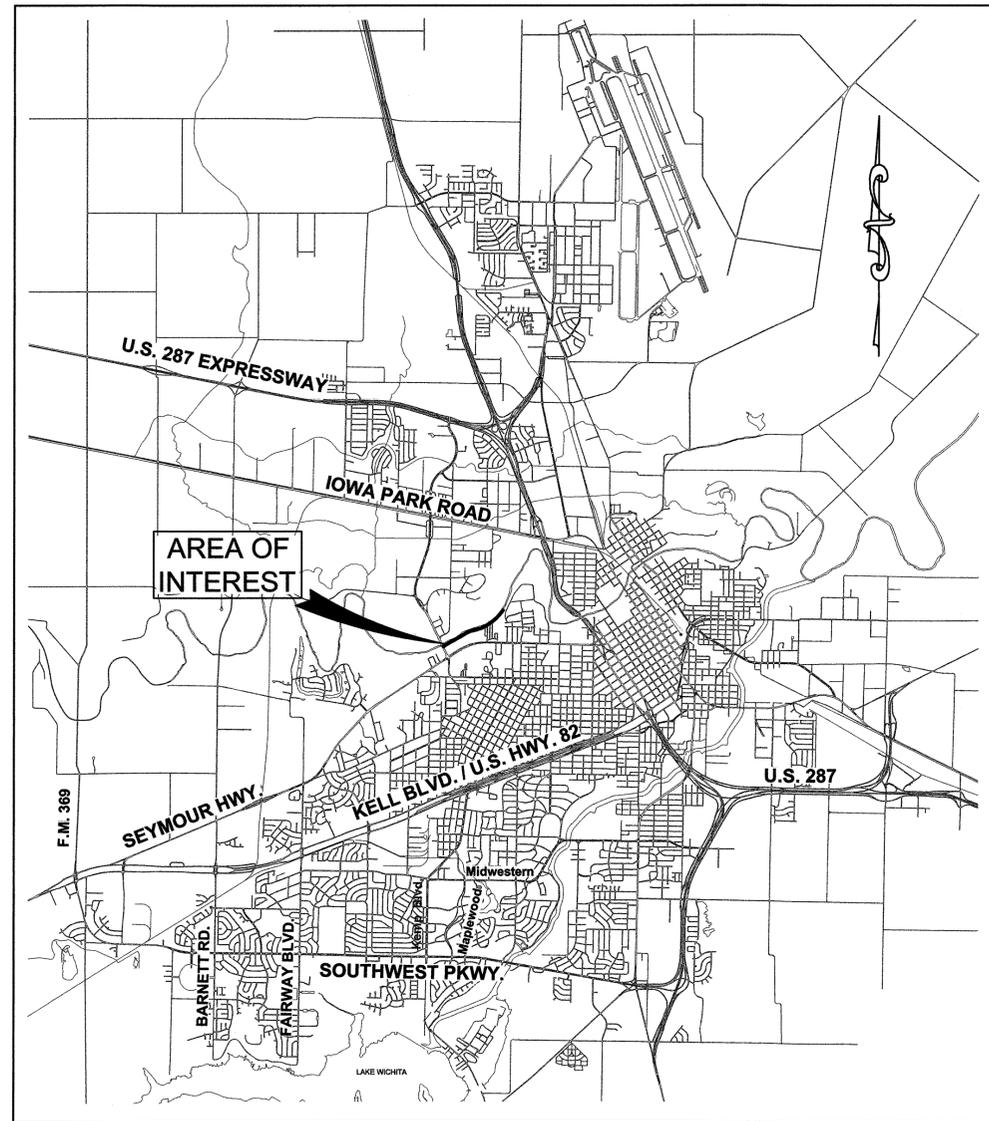
FROM LOOP 11 TO LUCY PARK

CITY OF WICHITA FALLS, TEXAS

JUNE 2019
CWF 18-444-13



Mayor : STEPHEN SANTELLANA
City Manager : DARRON LEIKER
Director of Public Works : RUSSELL SCHREIBER, P.E.



VICINITY MAP - WICHITA FALLS, TEXAS

APPROVED: *Russell Schreiber* 6-5-19
DIRECTOR OF PUBLIC WORKS DATE

RECOMMENDED: *T. Blaine Powell, P.E.* 6-3-19
CITY ENGINEER DATE



BIGGS & MATHEWS, INC.

Consulting Engineers

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WICHITA FALLS, TX 76301 Fax (940) 766-3383
TEXAS REGISTERED ENGINEERING FIRM F-834

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LOCATION

THIS PROJECT IS TO BE CONSTRUCTED ENTIRELY WITHIN THE PROPERTY OWNED BY, OR EASEMENTS GRANTED TO THE CITY OF WICHITA FALLS, TEXAS. THE CONTRACTOR IS IN NO WAY AUTHORIZED BY THE CITY TO ENTER ONTO PRIVATE PROPERTIES FOR CONSTRUCTION, STORAGE OF EQUIPMENT OR MATERIALS, OR OTHER PURPOSES. ARRANGEMENTS SHOULD BE MADE BY THE CONTRACTOR WITH THE PROPERTY OWNERS FOR SUCH USE. IN THE CASE THAT APPROVAL BY A PRIVATE PROPERTY OWNER IS OBTAINED FOR THE ABOVE STATED REASONS, WRITTEN EVIDENCE OF SAID AGREEMENT SHALL BE PRESENTED TO THE ENGINEER PRIOR TO COMMENCEMENT OF OPERATIONS.

GENERAL NOTES

THESE PLANS AND ACCOMPANYING SPECIFICATIONS ARE INTENDED TO PRODUCE A COMPLETE AND WORKING SYSTEM. ITEMS WHICH ARE NOT SPECIFICALLY ADDRESSED BY A PAY ITEM ARE TO BE INTERPRETED AS SUBSIDIARY TO THE PROJECT OVERALL. PAYMENT AS OUTLINED IN THE PROPOSAL FORM SHALL CONSTITUTE COMPLETE PAYMENT FOR ALL PERMITS, MATERIALS, LABOR, AND OTHER ITEMS REQUIRED TO COMPLETE THE PROJECT AS SHOWN AND AS SPECIFIED.

UNLESS OTHERWISE SPECIFIED WITHIN THESE PLAN SHEETS, THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES NOVEMBER 2014, AS AMENDED, SHALL BE THE GOVERNING SPECIFICATIONS FOR THIS PROJECT, OR UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WHERE A CONFLICT OCCURS IN THE PLANS, SPECIFICATIONS, OR ANY OTHER GOVERNMENTAL REQUIREMENT, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

THE CONTRACTOR SHALL NOTIFY THE CITY OF INTENT TO PERFORM CONSTRUCTION 24 HOURS PRIOR TO THE WORK.

THE CONTRACTOR SHALL ADVISE THE CITY IN WRITING OF THE INTENT TO WORK ON WEEKENDS BY THE CLOSE OF BUSINESS THURSDAY.

SPECIFICATION ITEM NUMBERS REFER TO THE CORRESPONDING BASE SPECIFICATIONS.

CONTRACTOR SHALL COORDINATE WITH A TEXAS LICENSED PROFESSIONAL ENGINEER FOR COMPLETION OF NOTICE OF INTENT (NOI) AND PREPARATION OF THE STORMWATER POLLUTION PREVENTION PLAN (SW3P) PRIOR TO CONSTRUCTION ACTIVITIES.

PROTECTION OF TREES, PLANTS ETC.

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT ALL VEGETATION, TREES, PLANTS, SHRUBBERY, ETC... WHICH ARE ADJACENT TO THE LINE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMEDY OF ALL DAMAGE TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A PRE-CONSTRUCTION SITE VIDEO AS SPECIFIED IN SECTION Q OF THE SPECIFICATIONS.

PERMISSION BY THE ENGINEER IS REQUIRED PRIOR TO THE REMOVAL OF ANY TREE WITH A DIAMETER AT BREAST HEIGHT LARGER THAN 10 INCHES.

UTILITIES

THE CITY OF WICHITA FALLS IS NOT RESPONSIBLE FOR DELAYS CAUSED TO THE CONTRACTOR BY INTERFERENCE FROM PRIVATE UTILITY LINES OR APPURTENANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY OWNERS PRIOR TO WORKING NEAR THE UTILITIES FOR VERIFICATION OF TYPE AND LOCATION. THE GENERAL LOCATION OF SOME EXISTING UTILITY LINES MAY NOT BE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CONTACT 761-4333 FOR WATER, SANITARY SEWER, AND STORM SEWER LOCATIONS. THE CONTRACTOR SHALL CONTACT 1-800-DIGTESS FOR ALL OTHER UTILITY LOCATIONS.

SAFETY CONSIDERATIONS

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR THE SAFETY OF WORKERS, INSPECTORS, AND THE GENERAL PUBLIC WITHIN THE PROJECT AREA. GUIDELINES ESTABLISHED BY THE CITY ARE TO BE INTERPRETED AS A MINIMUM EFFORT ON THE PART OF THE CONTRACTOR. THE CONTRACTOR SHALL FOLLOW OSHA GUIDELINES AS SHOWN IN THE SPECIFICATIONS. THE CONTRACTOR SHALL CONSOLIDATE EQUIPMENT AND MATERIALS IN A NEAT AND ORDERLY MANNER AT THE CLOSE OF EACH WORKING DAY. THE CONTRACTOR SHALL REFERENCE THE SECTION OF THE SPECIFICATIONS, WITH RESPECT TO TRENCH SAFETY, AND ADHERE TO ALL REQUIREMENTS.

EXCAVATION

ALL EXCESS EXCAVATED SOIL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE AT THE CONTRACTORS EXPENSE... THE CONTRACTOR SHALL COORDINATE HAULING TIMES WITH THE ENGINEER. ALL OTHER MATERIAL AND DEBRIS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR AS FOLLOWS: ALL MATERIAL ACCEPTABLE FOR CITY LANDFILL SHALL BE DISPOSED OF THEREIN. THE CITY WILL NOT WAIVE LANDFILL FEES FOR THIS CONTRACT. BID UNITS SHOULD INCLUDE AMOUNTS TO COVER THIS EXPENSE. MATERIALS NOT ACCEPTABLE TO THE CITY LANDFILL SHALL BE DISPOSED OF AT A LOCATION DETERMINED BY THE CONTRACTOR. THESE DISPOSAL SITES MAY REQUIRE APPROVAL BY THE ENGINEER AT THE CITY'S OPTION.

CONCRETE CONSTRUCTION

ALL CONCRETE USED FOR THE CONSTRUCTION OF HIKE & BIKE TRAIL AND APPURTENANCES SHALL BE A MINIMUM OF 3,600 PSI AT 28 DAYS. ALL DRAINAGE STRUCTURES/INLETS, RETAINING WALLS, AND BRIDGE PIERS & ABUTMENTS SHALL BE A MINIMUM OF 4,000 PSI AT 28 DAYS. ALL OTHER CONCRETE SHALL BE A MINIMUM OF 3,000 PSI AT 28 DAYS. CRUSHED STONE AGGREGATE SHALL BE USED IN THE CONCRETE. CONCRETE SHALL NOT BE PLACED WITHOUT A MINIMUM OF TWO WORKING CURING COMPOUND APPLICATORS ON THE JOB SITE. PIGMENTED CURING COMPOUND SHALL BE USED TO CURE ALL CONCRETE PLACED.

TRANSVERSE JOINTS SHALL BE SAWED AT 10' INTERVALS ALONG THE TRAIL UNLESS OTHERWISE NOTED. ALL JOINTS SHALL BE FILLED WITH AN APPROVED SEALER.

STEEL SHALL BE MINIMUM GRADE 60 UNLESS OTHERWISE NOTED... MINIMUM OVERLAP FOR SPLICING STEEL IS 30 BAR DIAMETERS.

CONSTRUCTION

MUD AND OTHER DEBRIS ON CITY STREETS RESULTING FROM THIS PROJECT SHALL BE REMOVED BY THE CONTRACTOR ON A CONTINUOUS BASIS.

THE CONTRACTOR SHALL COMPLY WITH ALL LOAD RESTRICTIONS WHEN USING CITY STREETS TO HAVE MATERIALS OR EQUIPMENT DELIVERED TO OR TRANSPORTED FROM THE WORK SITE.

THE CONTRACTOR SHALL PROTECT EXPOSED ENDS OF ALL PAVEMENT SURFACES DURING CONSTRUCTION. ANY DAMAGE THAT OCCURS TO SUCH PAVEMENT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS/HER SOLE EXPENSE.

THE CONTRACTOR SHALL PROVIDE FOR A SMOOTH/UNIFORM TRANSITION WHEN TYING TO EXISTING PAVEMENT. ANY DAMAGE THAT OCCURS TO SUCH PAVEMENT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS/HER SOLE EXPENSE.

THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND LICENSES NECESSARY FOR THE EXECUTION OF THE WORK AND SHALL FULLY COMPLY WITH ALL TERMS AND CONDITIONS. THIS SHALL INCLUDE ALL PERMITS ISSUED BY CONCERNED AGENCIES REQUIRED FOR WORK WITHIN THE RIGHT-OF-WAY.

SPOIL MATERIAL MAY BE USED FOR FILL, PROVIDED IT MEETS THE SPECIFICATION REQUIREMENTS FOR FILL MATERIAL. SOURCES OF FILL MATERIAL MAY BE APPROVED AT THE CITY'S OPTION.

ALL FILL SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D - 698 OR AS SHOWN ON PLANS OR SPECIFICATIONS.

ALL EXCAVATIONS SHALL BE MADE IN ACCORDANCE WITH THE OSHA SAFETY PROVISIONS.

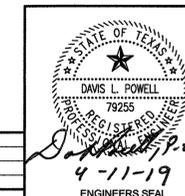
THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE THROUGHOUT THE PROJECT.

SCHEDULING

NO CONSTRUCTION ACTIVITIES SHALL OCCUR ON CAMPFIRE TRACT DURING THE MONTH OF JUNE.

GENERAL NOTES / INDEX

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK



*STANDARD TEXAS DEPARTMENT OF TRANSPORTATION DETAIL
SELECTED BY THE ENGINEER FOR INCORPORATION INTO PROJECT

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GENERAL NOTES

SECTION Q

SECTION Q

PROJECT SPECIFIC SPECIAL REQUIREMENTS AND SPECIFICATIONS

Basis of Estimate Item	Description	Rate	Basis	Quantity
166*	Fertilizer	60 LB/AC	21.0 AC	*0.63 TON
168	Vegetative Watering	175 MG/AC	21.0 AC	3675 MG

*For Contractor's Information Only

SECTION Q - GENERAL NOTES:

PURPOSE: This section is intended to address project specific needs that are unique in nature. The subject matter in this section is intended to clarify, modify and supersede the Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges November 2014.

SPECIAL WARRANTY: The Contractor shall guarantee all material and workmanship for a period of one (1) year from the date of final acceptance by the Director of Public Works. The guarantee shall specifically include the direct labor cost to replace any faulty material at no cost to the Owner.

CAMP FIRE REQUIREMENTS:

The Contractor shall not engage in construction activities adjacent to or on the Camp Fire property, Sta 34+50 to 43+50, during the month of June due to summer day camp activities. Work is only restricted along the Campfire property and shall continue along the rest of the project during June.

Earthwork cross section files are available upon request.

ITEM SPECIFIC NOTES:

Items 1-9. GENERAL REQUIREMENTS AND COVENANTS

For this project, any references to the "Department" or "Commission" shall be replaced with the "City of Wichita Falls, TX (City)"

Item 4. SCOPE OF WORK

Attend a preconstruction conference to discuss safety, traffic controls, traffic safety, construction sequences, maintenance of access, drainage controls, illumination, and pollution control measures prior to beginning construction. At the preconstruction conference submit to the Engineer for his approval requests for subcontractors, including barricade servicers and haulers. Requests for approval of subcontractor must be approved before subcontractors begin work. At the preconstruction conference submit to the Engineer for his approval, the Contractor's and subcontractor's work schedule, material sources, written utility coordination plan, and letters designating the project superintendent, safety officer, and payroll officer Attendance at the preconstruction conference by the Contractor's superintendent is mandatory.

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Maintain access to all commercial and private drives and public roads unless the Engineer approves temporary closure and the affected property owners are notified.

Preconstruction Video: A representative of the CONTRACTOR, accompanied by the Project Inspector, shall walk the project limits and record in digital format acceptable to the Owner such as CD or DVD the existing condition of all natural and manmade objects, structures and landscaping in the area. The video shall display the date the video was recorded. **A copy of the video shall be furnished to the PROJECT MANAGER at the Preconstruction Meeting.**

Preconstruction Notices: The CONTRACTOR shall prepare a typewritten notice, which contains the following:

- (a) The CONTRACTOR's name, address, and telephone number;
- (b) The name of the job superintendent.
- (c) Phone numbers where the CONTRACTOR or his superintendent can be reached during the day and at night;
- (d) A general description of the work that is to be performed, the construction procedure that will be used, and the anticipated length of time that will be required to complete each phase of the construction.

The CONTRACTOR shall deliver copies of this notice to the PROJECT MANAGER and to each residence or business that will be affected by the planned construction a minimum of 48 hours before beginning work in any area.

Item 5. CONTROL OF THE WORK

Coordinates are surface values based on Texas State Plane Coordinate System, Texas North Central 4202, North American Datum 1983 (NAD83), 1993 adjustment, using GEOID99 or GEOID12A model, NAVD88. Use control points provided in plans.

CONTRACTOR shall provide for all construction staking from vertical and horizontal control points established by the City. In accordance with generally accepted standards, he shall establish and be responsible for the correctness of alignment, elevation and position of all construction required by the contract. The CONTRACTOR shall notify the City three working days in advance of the need for the establishment of the survey control points, which will be located one time only. Construction staking shall be considered as incidental work, and the cost thereof shall be subsidiary to the various bid items of the contract.

Item 6. CONTROL OF MATERIALS

Verify material quantities and dimensions before ordering materials.

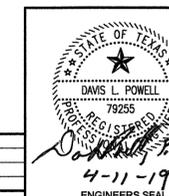
Item 7. LEGAL RELATIONS AND RESPONSIBILITIES

INSURANCE: The Contractor must furnish a copy of its Certificate of Liability Insurance. The insurance coverage must meet the minimum amounts required by the Contract, including: Commercial General Liability: \$1,000,000 per occurrence; Automobile Liability: \$600,000 aggregate or \$500,000 for personal injury and \$100,000 for property damage; Workers' Compensation: Statutory Limits. The City of Wichita Falls (or "Certificate Holder") should be named as an Additional Insured on General Liability and Automobile Liability policies. The City of Wichita Falls (or "Certificate Holder") should be provided a Waiver of Subrogation on General Liability, Automobile Liability, and Workers' Compensation policies. Endorsements providing for additional insured and waiver of subrogation must be provided. There should be a provision for 30 days' advance written notice of cancellation or material change shown on the Certificate of Liability Insurance. See the North Central Texas Council of Governments' Standard

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GENERAL NOTES / SECTION Q

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK



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Specifications for Public Works Construction at 103.4 and the City's Supplemental Conditions for more information.

ITEM 8. PROSECUTION AND PROGRESS

Working days will be computed and charged in accordance with Article 8.3.1.4 Standard Workweek.

Coordinate and update the work schedule with the Engineer monthly. Perform work requiring inspection or testing during a normal 8-hour day if at all possible (i.e. concrete pours, soil density tests, etc.). Notify the Engineer 24 hours in advance of any work requiring inspection or testing. Do not begin work before sunrise and ensure that all machines are off the road by sunset unless a nighttime work plan has been approved in writing by the engineer.

WEATHER DAYS: The number of adverse weather days shall be determined on a monthly basis from the first calendar day to the last calendar day of each month. An adverse weather day shall be a day in which inclement weather caused the Contractor to be unable to perform work less than 7 of the normal working hours within the day (including weekends and holidays only if work is scheduled or attempted) and which delayed the Contractor's work critical to the timely completion of the Project. Adverse weather day claims/requests shall be project and work type specific. If the Contractor is not scheduled to work on any given day (i.e. weekends and holidays), that day shall not automatically be granted as an adverse weather day. The number of claimed/requested adverse weather days will be reviewed and evaluated by the Project Engineer/Manager and Project Inspector. The Project Inspectors Daily Logs shall be the Log of Record. The Contractor shall be entitled to a time extension equal to the number of justifiable adverse weather days as deemed by the Project Engineer/Manager. The Contractor shall submit weather day claims/requests, in writing, with each monthly pay request. Failure to submit claims/requests in accordance with this specification will result in no extension of time being granted for that period.

Item 100. PREPARING RIGHT OF WAY

Removal of obstructions included in this item include, but are not limited to, removal of trees and hedges, and any other obstructions that are not specifically paid for under other items. This item will include removal of all underbrush and trash within the project limits where practical. Remove trees as required for construction unless marked as to remain. Care shall be taken to ensure that trees, branches, and other debris do not enter the river. Any trees, brush or debris that falls into the river must be removed from the river. All other debris resulting from these operations will become the property of the Contractor and should be disposed of outside of the project limits.

Item 132. EMBANKMENT

Provide Type A material. Embankment will be paid for as "Embankment (Final)".

Item 160. TOPSOIL

Remove and stockpile 6" of topsoil from areas designated for pavement, excavation and embankment. After construction is complete, place the stockpiled topsoil to a depth of 6" adjacent to the edge of trail and on slopes to the finished grade elevation on all areas disturbed during construction. This item shall be paid for per trail station.

Item 164. SEEDING FOR EROSION CONTROL

Use the following seed distribution for permanent vegetative establishment:

- 1. Buffalograss 40%
- 2. Green Sprangletop 13%
- 3. Blue Grama 10%
- 4. Sideoats Grama 10%
- 5. Hairy Vetch 10%

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- 6. Little Bluestem 7%
- 7. Indiangrass 5%
- 8. Sand Lovegrass 5%

The percentages listed are by weight at a seeding rate of the resulting mix at 15 lbs/acre in a hydroseeded application.

This mix will be planted between April 10th and June 10th.

If unable to plant by June 10th, apply the cool weather seed as follows; a 50/50 mix of Canada Wildrye and Western Wheatgrass hydroseeded at a rate of 10 lbs/acre between October 1st and December 15th for this application, and follow up with the permanent mix after April 10th hydroseeded at a rate of 10 lbs/acre.

Provide Cellulose Fiber Mulch Seeding for permanent urban clay slopes 3:1 or less. Fertilizer will be subsidiary to this item. Vegetative watering shall be paid under Item 168.

Item 168. VEGETATIVE WATERING

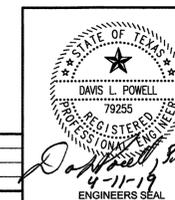
Use of City Water for Construction (Water Meters on Fire Hydrants):The Code of Ordinances of the City of Wichita Falls prohibits anyone except the Fire Department and Public Works Department from drawing water from a fire hydrant unless specifically authorized by the Utilities Operations Manager to do so. The City recognizes the short term need of contractors and selected other persons to take water from a fire hydrant, therefore a hydrant meter can be provided under the following terms:

1. Refer to Section 106-129 of the City Code of Ordinance for the cost associated to the fire hydrants meters.
2. The Contractor will incur normal water usage charge when the water is to be used on a project under contract with the City of Wichita Falls.
3. Initial application to install a meter is to be made in Room 402, Memorial Auditorium. Subsequently, orders to install, move or pick up a meter are to be in writing on the standard form and submitted to Utility Collections (Room 302, Memorial Auditorium). Meters will be set, relocated or removed by Public Works personnel only.
4. The responsible Contractor will be charged for repairs to damages caused by improper use or neglect. The Contractor is responsible for security of the meter and for proper winterization during cold weather.
5. Water will be drawn from a fire hydrant through the meter only; straight hook ups are not allowed. Hoses and other straight connections found on the hydrant will be removed and retained by the City. A straight connection may be grounds for filing a complaint in the Municipal Court.
6. The potential for cross-connection is of particular concern to the City of Wichita Falls. Water may not be taken from a fire hydrant into any type tank or container unless that tank or container has a fixed, permanent air-gap installed or a testable double check valve is attached to the meter by the Contractor. The air-gap must be twice the diameter of the intake hose or pipe, and the hose or pipe must be permanently affixed above the overflow level of the tank or container. Each tank container or testable double check valve must be inspected by the Plumbing Inspector of the City of Wichita Falls, and a permit must be issued for the specific tank container or testable double check valve to be used. A tank container or testable double check valve not approved and permitted by the Inspection Department will not be used to take water from a City fire hydrant.

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GENERAL NOTES / SECTION Q

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7. The meter may not be used on multiple projects at the same time. The meter may only be used for City-funded and inspected projects.
8. Failure to comply with the above requirements may result in removal of the meter and cancellation of the account.
9. This project will not be accepted or final payment made until the meter is returned.

Item 170. IRRIGATION SYSTEM

Camp Fire will provide water supply to the irrigation system. The Contractor shall provide electric line to the controller from existing electrical source at or near the Friendship Cabin building adjacent to the controller.

Item 192. PLANT MATERIAL (10 GAL) (TREE)

Provide Sea Green Juniper in 10 gal containers as shown 12 feet from fence with 6 feet spacing, staggered 4 feet front to back.

Item 420. CL C CONCRETE (MISC)

This item shall be used for Storm Drain D7 described on page 405 and 406.

Item 423. RETAINING WALLS

This item shall be used for retaining walls 1 thru 4. Square foot surface area of retaining wall is measured from the top of retaining wall to one foot below finished grade. Footing adjustments made to accommodate the available optional retaining walls are not measured.

Supply drainage aggregate meeting the requirements of this item for use as filter material with the retaining wall.

Item 423. RETAINING WALL (SPECIAL)

This item shall be used for retaining walls 5 and 6. Use integral color additive "Light Chestnut" TRUPOUR® from SURECRETE® or other approved like material. Use form liner with Tallahassee Ashlar pattern for texture on exposed wall facing trail. Contractor shall submit samples to Engineer for approval prior to procurement of materials for texture and color.

Form liners shall be installed with horizontal lines being level. Contractor shall not splice form liner panels in a way that causes a noticeable transition or line between pieces. Wash and clean form liners after each use when the forms can be re-used. Replace form liners that have become damaged or worn. Seal all form liner joints with tape, or in a manner acceptable to the Engineer to prevent leakage at the surface. Grout or caulk seal for joints is not acceptable. Form liners shall provide a clean release from the concrete surface without pulling or breaking the textured concrete. Contractor shall form a 4 inch smooth face with a 1 inch chamfer at the top of the retaining wall.

The top elevation of retaining wall 5 may be adjusted by the Engineer to fit field conditions with corresponding square feet adjustment to the quantity.

Price shall be full compensation for cast in place retaining wall with integral color and textured surface.

Item 432. RIPRAP

Riprap shall have an 8 inch toe at all inflow and outfall perimeters.

Concrete Class B invert shaping is required at all inlets in order to insure positive flow.

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Provide Class B Concrete for riprap. No welded wire reinforcement will be allowed. Fiber mesh concrete admixture will not be allowed as an alternative to reinforcing steel.

Locations and quantities may be varied as directed by the Engineer to accommodate field conditions.

Item 450. RAILING

Prepare and submit shop drawings for approval prior to beginning installation of handrail.

Item 462. CONCRETE BOX CULVERT

Use lean concrete or 2 sack flowable backfill for fill between pre-cast boxes. Lean concrete and 2 sack flowable backfill shall be considered subsidiary to this bid item.

Item 465. INLET COMPLETE TYPE SIDEWALK BRIDGE

This item shall be used for the cast-in-place culvert described on page 602.

Item 506. TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

An Inspector will perform a regularly scheduled SWP3 inspection every 7 calendar days. Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

Water quality certification from the Texas Commission on Environmental Quality (TCEQ) is a requirement of section 404 NWP# 14, and section 401. TxDOT has committed to using the erosion control measures (also known as best management practices (BMP)) shown in the SW3P layout sheets and the SW3P narrative sheet. However, if one of the erosion control measures proves ineffective, the Engineer may choose a more appropriate measure for the site condition.

Verify locations and dimensions of BMP's with the Engineer before placement. BMP locations indicated on the plans are approximate and may be adjusted as necessary by the Engineer.

All erosion control measures must be installed and maintained in accordance with the plans, manufacturer specifications, and good engineering practices. If periodic inspections or other information indicates an erosion control measure has been used inappropriately or incorrectly, replace or modify the control for the site situations as directed by the Engineer.

If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts. Remove fugitive sediment from streets or highways immediately to prevent them from being washed into sewers by the next rain event and/or posing a safety hazard to the public.

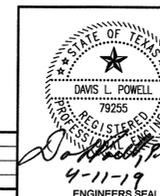
Prevent litter, construction debris, and construction chemicals exposed to storm water from becoming a pollutant source for storm water discharges (e.g., screening outfalls, trash picked up daily, etc.).

Update the SW3P as necessary to remain consistent with any changes applicable to protecting surface water resources. This may relate to updating the sediment and erosion control site plans or site permits, or storm water management site plans or site permits approved by state, tribal, or local officials from which written notice is received.

Remove sediments from sediment controlling BMP's when design capacity has been reduced by 50%.

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REVISION	DATE	DESCRIPTION



GENERAL NOTES / SECTION Q

HIKE & BIKE TRAIL
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CHK. DP	DWG.:	2A-3 OF 42

GENERAL NOTES

SECTION Q

Make every effort to preserve vegetation where it does not compromise safety or substantially interfere with project construction. Trim rather than remove trees where possible.

Avoid the taking of migratory birds, their young, and their nests. Do not remove trees without prior approval from the Project Manager with concurrence of the environmental coordinator.

Limit impacts to water of the United States to minimum necessary to accomplish project. Do not locate haul roads, stock piles, staging areas, or other PSLs in waters of the United States. Do not discharge solid materials, including building material, into water of the United States, except as authorized by a nationwide or individual US Army Corps of Engineers permit issued under section 404 of the Clean Water Act as noted on EPIC plan sheet.

In the event that archaeological sites are encountered in the project area during any phase of this project, a TxDOT archaeologist will be contacted to take necessary steps to investigate such findings in accordance with Section 106 of the National Preservation Act.

ITEM 502. BARRICADES, SIGNS AND TRAFFIC HANDLING

The traffic control plan for this project includes the plans, the Texas Manual on Uniform Traffic Control Devices, Traffic Division standard sheets, and as required by the Engineer. Any variation must be approved in writing.

Erect signs in locations not obstructing the traveling public's view of the normal roadway signing or necessary sight distance at intersections and curves. Work will not be permitted without adequate traffic control devices in place. Replace all damaged traffic control devices immediately. Remove any damaged traffic control devices from the project within 24 hours.

The Contractor's superintendent and person responsible for TCP compliance must be available by local telephone 24 hours a day. This person must be able to respond to the project within 45 minutes to immediately correct any deficiencies which may occur.

The contractor's person responsible for TCP compliance may be required to accompany department personnel once a month on at least one daytime inspection and one nighttime inspection of the traffic control devices used on the project.

ITEM 502. BARR, SIGNS, TRAFFIC HANDLING (LOC 1)

This item shall be used for the temporary fencing and any other items required for security and pedestrian protection along the Camp Fire property, Sta 34+50 to 43+50. The Contractor shall provide 6 feet fencing with visibility block netting along the property line that closes on edge of Friendship Cabin building for security. The existing chain link fence that will be removed for construction may be relocated and used for part of the temporary fencing as long as it can be installed to provide the needed security.

Item 531. CONCRETE SIDEWALKS (6")

Refer to details in plans for information on sidewalk section and joint details. Contraction joints shall be sawed. Finish exposed surfaces to a uniform transverse broom finish surface.

Construct sidewalks to ensure that abrupt changes in sidewalk elevation do not exceed 1/4 inch, sidewalk cross slope does not exceed 2%, curb ramp grade does not exceed 8.3%, and flares adjacent to the ramp do not exceed 10% slope.

Type 2 curing materials only will be used.

Self-propelled paving equipment will not be required on this project. Sidewalks can be placed by conventionally formed concrete or by extruded or slipformed concrete. Hand finishing is allowed for any method of construction.

Item 550. CHAIN LINK FENCE (6')

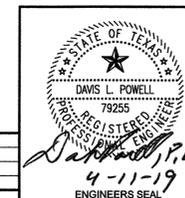
Provide permanent new 6 feet chain link fence with visibility netting at the Camp Fire property line utilizing 9 gauge wire, schedule 40 posts and concrete mow strip. Visibility netting and concrete mow strip are subsidiary to the fence.

Q-7

Q-8

GENERAL NOTES / SECTION Q

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK



REVISION	DATE	DESCRIPTION

DN. TW	DATE: APRIL 2019	SHEET
DW. TW	SCALE: N.T.S.	002-A
CHK. DP	DWG.:	2A-4 OF 42

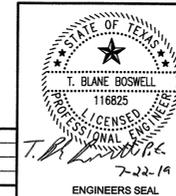
ESTIMATED QUANTITIES

LOCATION	SUMMARY OF TRAFFIC CONTROL ITEMS		SUMMARY OF REMOVAL ITEMS		SUMMARY OF ROADWAY ITEMS					SUMMARY OF RETAINING WALL ITEMS		SUMMARY OF DRAINAGE ITEMS						
	500 6001	502 6001	100 6002	104 6028	110 6004	132 6002	160 6002	531 6003	402 6001	423 6008	450 6051	420 6074	432 6006	432 6031	462 6009	464 6003	464 6005	464 6007
	MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING	PREPARING ROW	REMOVING CONC (MISC)	EXCAVATION (ROADWAY AND CHANNEL)	EMBANKMENT (FINAL)(DENS CONT)(TY A)	FURNISHING AND PLACING TOPSOIL (6")	CONC SIDEWALKS (6")	TRENCH EXCAVATION PROTECTION	RETAINING WALL (CAST - IN - PLACE)	RAIL (HANDRAIL)(TY E)	CL C CONC (MISC)	RIPRAP (CONC)(CL B)	RIPRAP (STONE PROTECTION) (12 IN)	CONC BOX CULV (5 FT X 5 FT)	RC PIPE (CL III)(18 IN)	RC PIPE (CL III)(24 IN)	RC PIPE (CL III)(30 IN)
LS	MO	STA	SY	CY	CY	STA	SY	LF	SF	LF	CY	CY	CY	LF	LF	LF	LF	
STA 00+00 to 10+50	1	12	10.5		599	329	10.5	1246	175	594	344	0	1	230		45	24	102
STA 10+50 TO 20+50			10		459	515	10	1191	170	1257	340	0	17	550	42			155
STA 20+50 TO 30+50			10		1986	28	10	1172	0	0	0	0	0	34				
STA 30+50 TO 34+58.51			3.6	117	570	0	5.4	525	54	5664	67	107	5	30				
STA 34+58.51 TO END			21.3															
PROJECT TOTALS	1	12	55.4	117	3614	872	35.9	4134	399	7515	751	107	23	844	42	45	24	257

LOCATION	SUMMARY OF DRAINAGE ITEMS								SUMMARY OF EROSION ITEMS										SUMMARY OF LANDSCAPE ITEMS
	464 6008	465 6156	465 6233	466 6003	466 6005	466 6007	466 6009	164 6025	168 6001	169 6004	506 6002	506 6011	506 6020	506 6024	506 6038	506 6039	506 6041	506 6043	1002 6026
	RC PIPE (CL III)(36 IN)	INLET (COMPL)(PAZD)(RG)(4FTX4FT)	INLET (COMP)(TY SIDEWALK BRIDGE)	HEADWALL (CH - FW - 0) (DIA= 18 IN)	HEADWALL (CH - FW - 0) (DIA= 24 IN)	HEADWALL (CH - FW - 0) (DIA= 30 IN)	HEADWALL (CH - FW - 0) (DIA= 36 IN)	CELL FBR MLCH SEED(PERM)(URBAN)(SAND Y)	VEGETATIVE WATERING	SOIL RETENTION BLANKETS (CL 1) (TY D)	ROCK FILTER DAMS (INSTALL) (TY 2)	ROCK FILTER DAMS (REMOVE)	CONSTRUCTION EXITS (INSTALL) (TY 1)	CONSTRUCTION EXITS (REMOVE)	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)	BIODEG EROSN CONT LOGS (IN STL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	LANDSCAPE AMENITY (BENCH)
LF	EA	EA	EA	EA	EA	EA	SY	MG	SY	LF	LF	SY	SY	LF	LF	LF	LF	EA	
STA 00+00 TO 10+50	48	1		2	1	1	2	3160	114	1835					785	785	89	89	1
STA 10+50 TO 20+50	60	2					1	2281	83	1533			84	84	247	247	118	118	1
STA 20+50 TO 30+50			1					3108	113	1486					1000	1000	18	18	1
STA 30+50 TO 34+58.51								936	34	2860	20	20	84	84	1865	1865			1
PROJECT TOTALS	108	3	1	2	1	1	3	9485	344	7714	20	20	168	168	3897	3897	225	225	3

ESTIMATED QUANTITIES

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK



REVISION	DATE	DESCRIPTION

DN. TW	DATE: APRIL 2019	SHEET
DW. TW	SCALE: N.T.S.	002-B
CHK. DP	DWG.:	28-1 OF 42

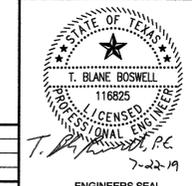
ESTIMATED QUANTITIES ADD / ALT

LOCATION	SUMMARY OF TRAFFIC CONTROL ITEMS		SUMMARY OF REMOVAL ITEMS		SUMMARY OF ROADWAY ITEMS				SUMMARY OF RETAINING WALL ITEMS		SUMMARY OF DRAINAGE ITEMS				
	502 6026	104 6015	104 6028	105 6008	110 6004	132 6002	160 6002	531 6003	423 6008	450 6051	432 6006	432 6031	465 6233	464 6008	466 6009
	BARR, SIGNS, TRAFFIC HANDLING (LOC 1)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (MISC)	REMOVING STAB BASE AND ASPH PAV (6")	EXCAVATION (ROADWAY AND CHANNEL)	EMBANKMENT (FINAL)(DENS CONT)(TY A)	FURNISHING AND PLACING TOPSOIL (6")	CONC SIDEWALKS (6")	RETAINING WALL (CAST - IN - PLACE)	RAIL (HANDRAIL)(TY E)	RIPRAP (CONC)(CL B)	RIPRAP (STONE PROTECTION)(12 IN)	INLET (COMP) (TY SIDEWALK BRIDGE)	RC PIPE (CL III)(36 IN)	HEADWALL (CH - FW - 0) (DIA= 36 IN)
EA	SY	SY	SY	CY	CY	STA	SY	SF	LF	CY	CY	EA	LF	EA	
STA 34+58.51 TO 40+50					459	68	4.6	759	6691						
STA 40+50 TO 50+11	1	88	20		892	174	9.6	1204	312	50	8	270	1	134	1
SPUR STA 0+00 TO 5+32.73		104		97	201	24	5.3	832					1		
PROJECT TOTALS	1	192	20	97	1552	266	19.5	2795	7003	50	8	270	2	134	1

LOCATION	SUMMARY OF EROSION CONTROL ITEMS					SUMMARY OF LANDSCAPE ITEMS				
	164 6025	168 6001	169 6004	506 6041	506 6043	170 6001	192 6022	550 6001	550 6022	1002 6026
	CELL FBR MLCH SEED(PERM)(URBAN)(SANDY)	VEGETATIVE WATERING	SOIL RETENTION BLANKETS (CL 1) (TY D)	BIODEG EROSN CONT LOGS (INSL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	IRRIGATION SYSTEM	PLANT MATERIAL (10 GAL) (TREE)	CHAIN LINK FENCE (INSTALL) (6')	GATE (INSTALL)(DOUBLE)(6' X 16')	LANDSCAPE AMENITY (BENCH)
SY	MG	SY	LF	LF	LS	EA	LF	EA	EA	
STA 34+58.51 TO 40+50	1349	49	0				97	746		
STA 40+50 TO 50+11	2343	85	271	18	18	1	38	279	1	1
SPUR STA 0+00 TO 5+32.73	1142	41	0							
PROJECT TOTALS	4834	175	271	18	18	1	135	1025	1	1

ESTIMATED QUANTITIES ADD/ALT

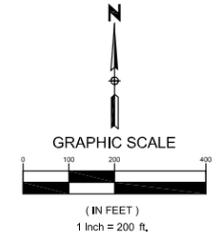
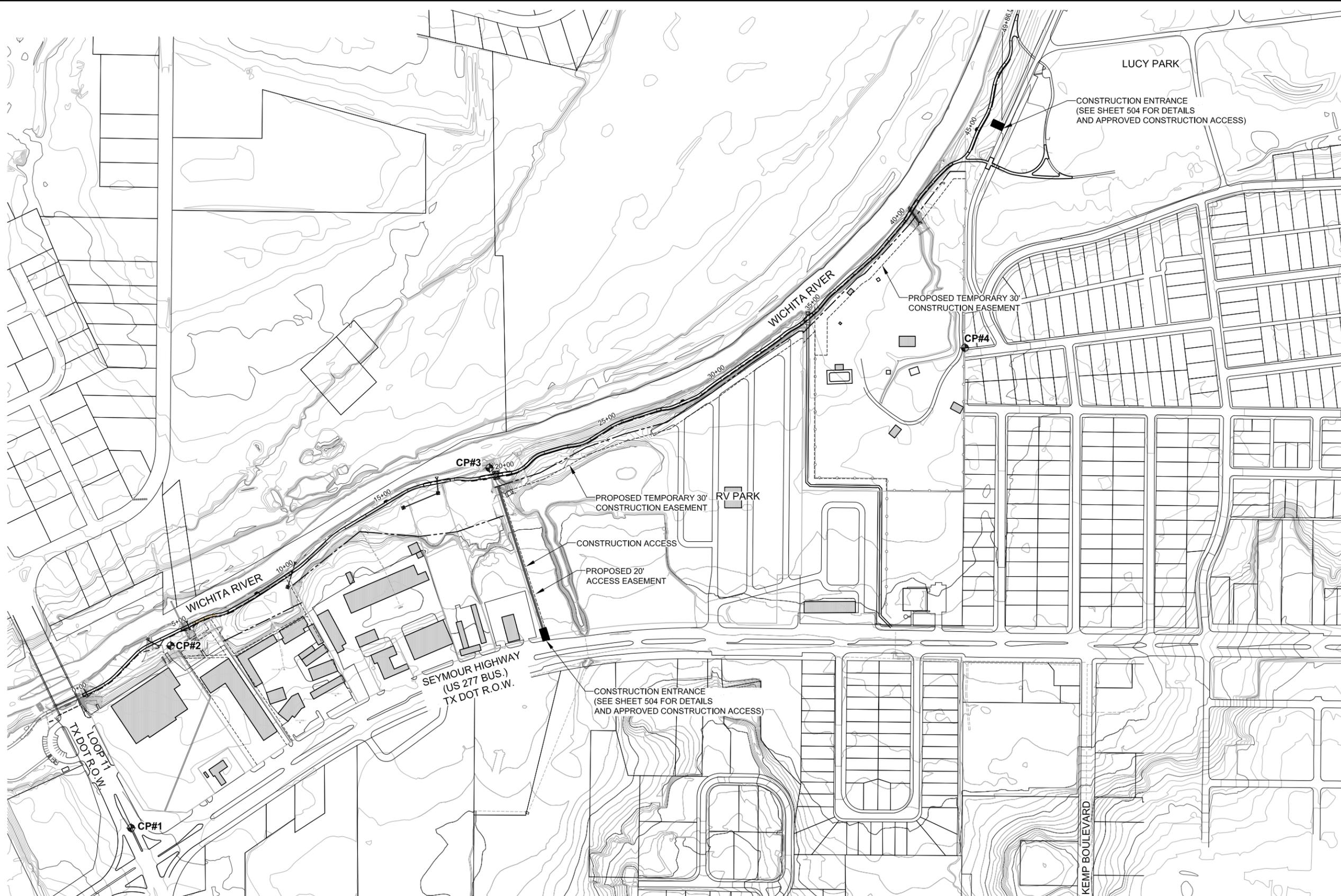
HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK



REVISION	DATE	DESCRIPTION

DN. TW	DATE: APRIL 2019	SHEET
DW. TW	SCALE: N.T.S.	002-B
CHK. DP	DWG.:	28-2 OF 42

DWG: F:\03_Projects\2012\2012-057C\dwg\01 C-001 COVER.dwg USER: ngann
 DATE: Apr 24, 2017 12:56pm XREFS: GBS BASE CONTOURS



PROJECT LAYOUT

HIKE & BIKE TRAIL
 FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

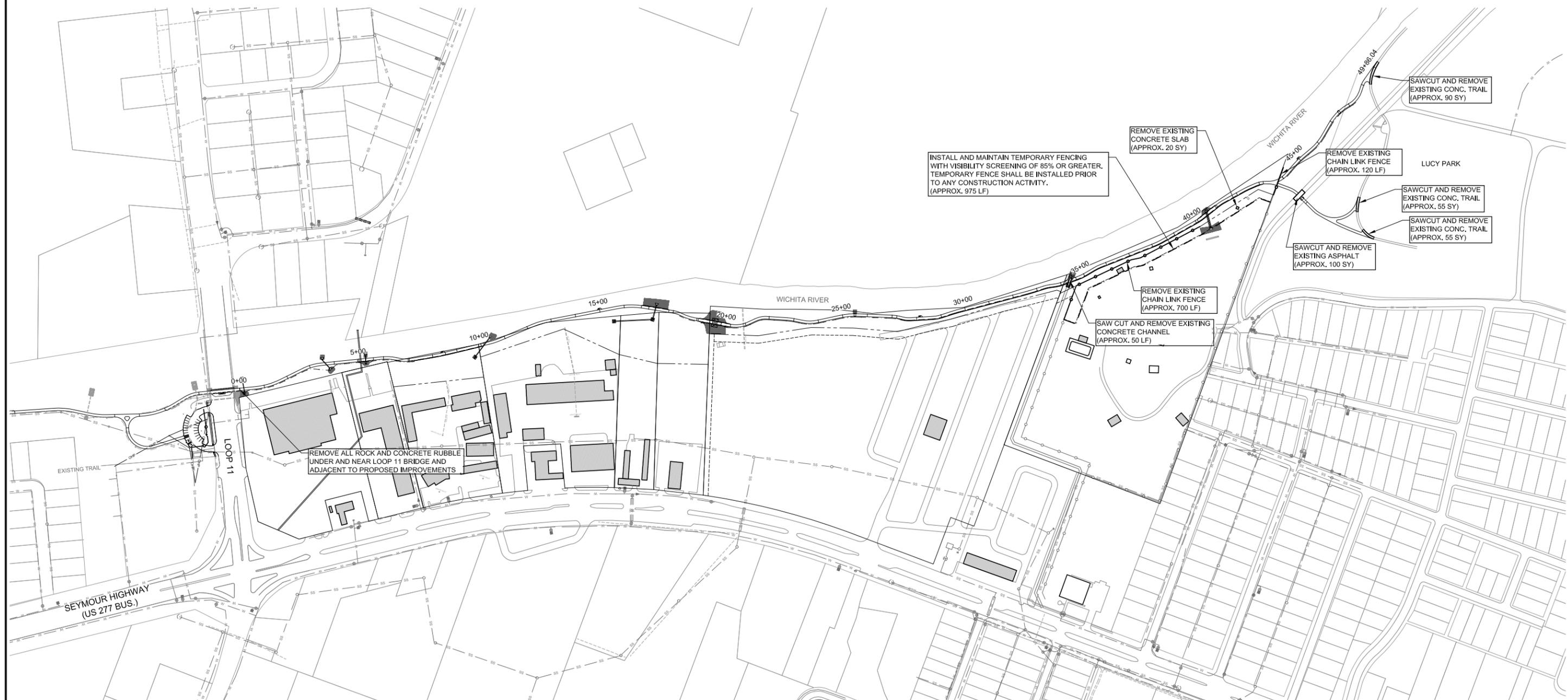
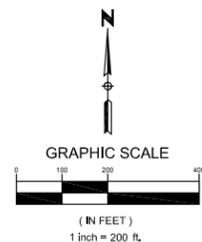


CONTROL POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	7376970.86	1958608.62	962.39	CITY DISK
CP#2	7377722.53	1958772.45	936.08	1/2" IRON ROD
CP#3	7378454.65	1960086.51	937.41	1/2" IRON ROD
CP#4	7378950.98	1962054.38	938.60	1/2" IRON ROD

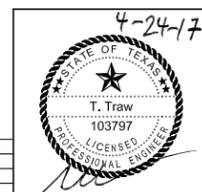
		BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834	
		2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383	
DN. TT	DATE: APRIL 2017	SHEET	
DW. NG	SCALE: 1" = 200'	003	
CHK. TT	DWG.:	03 OF 42	

F:\03_Projects\2012\2012-057C\dwg\01 C-001 COVER.dwg

REVISION	DATE	DESCRIPTION



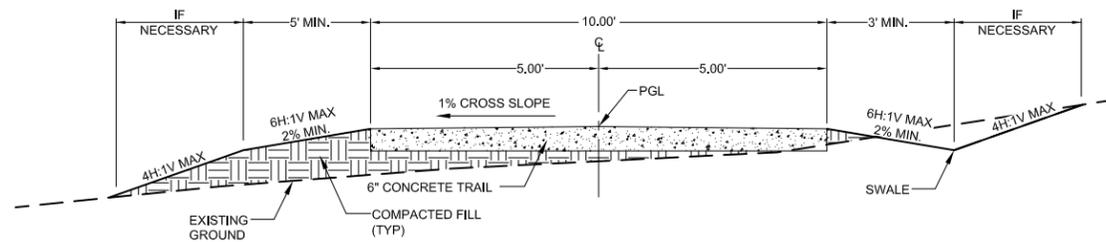
- GENERAL DEMOLITION NOTES:**
1. DEMOLITION SHALL INCLUDE ALL ITEMS AS NOTED OR OTHERWISE NECESSARY FOR THE COMPLETION OF THE PROJECT.
 2. ALL DEMOLITION MATERIAL SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.
 3. THE DEMOLITION SHALL INCLUDE THE PROPER HAULING AND DISPOSAL OF ANY WASTE, TRASH, DEBRIS, OR OTHERWISE DELETERIOUS MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE PROJECT.



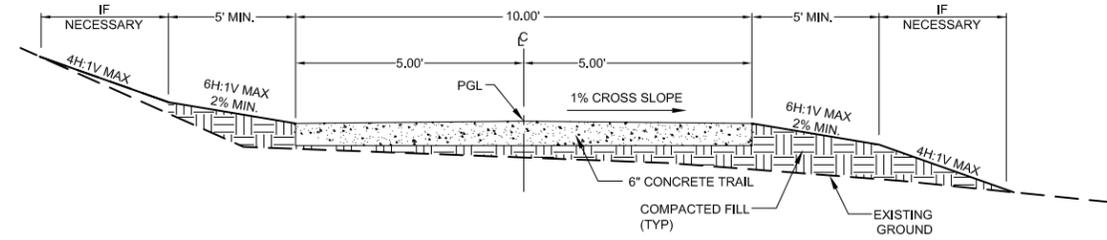
DEMOLITION PLAN	
HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK	
WICHITA FALLS, TEXAS	
BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383	
DN. TT	DATE: APRIL 2017
DW. NG	SCALE: 1" = 200'
CHK. TT	DWG.: 04-e-004-demolition-plan.dwg
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REVISION	DATE	DESCRIPTION

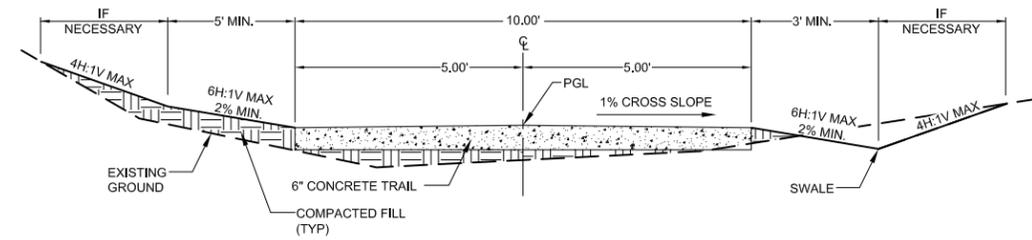
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 DATE: Apr 24, 2017 12:56pm XREFS: GBS BASE CONTOURS PROF-TRAIL PHASE 2 ONLY



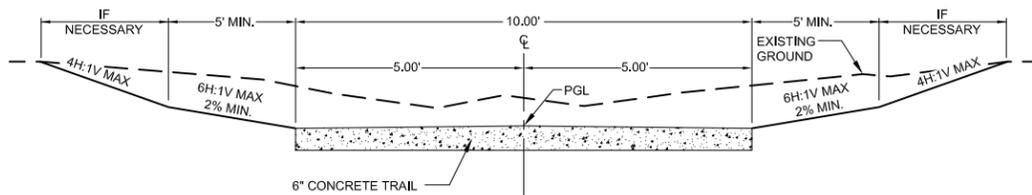
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NOT TO SCALE



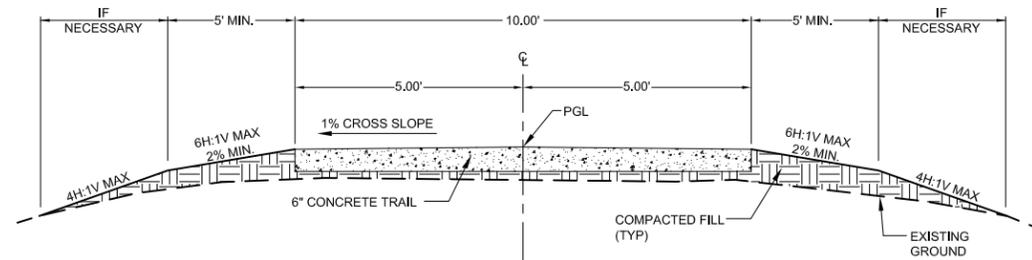
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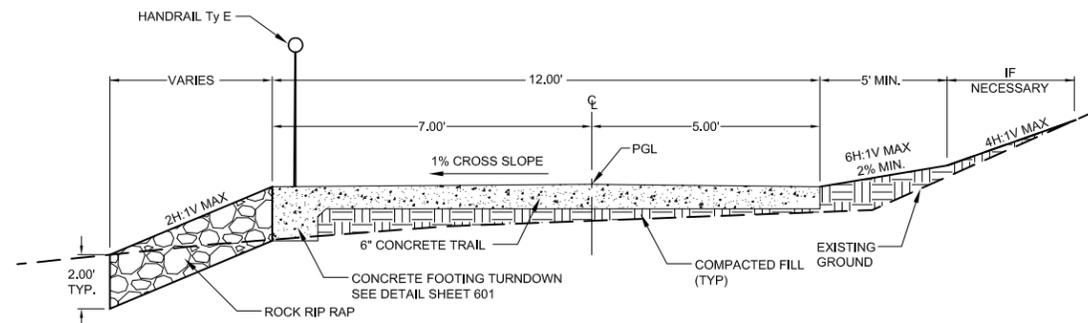
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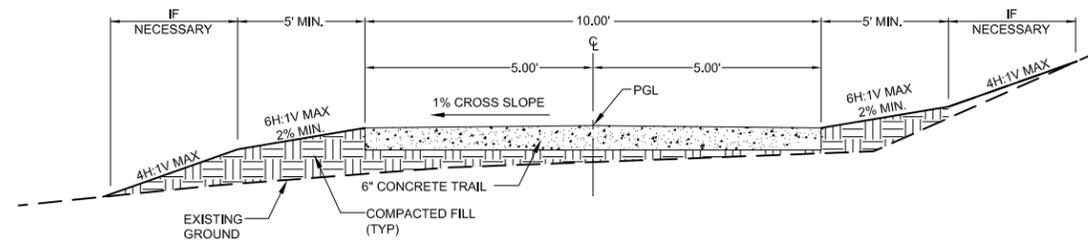
F TRAIL SECTION
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C TRAIL SECTION
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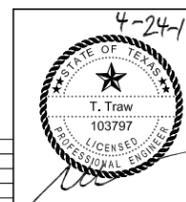


G TRAIL SECTION
NOT TO SCALE



D TRAIL SECTION
NOT TO SCALE

DWG: F:\03_Projects\2012\12-057\c\dwg\06 c-102 TYPICAL SECTIONS.dwg USER: ngamm
 DATE: Apr 24, 2017 12:56pm XREFS: GBS



TYPICAL SECTIONS

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

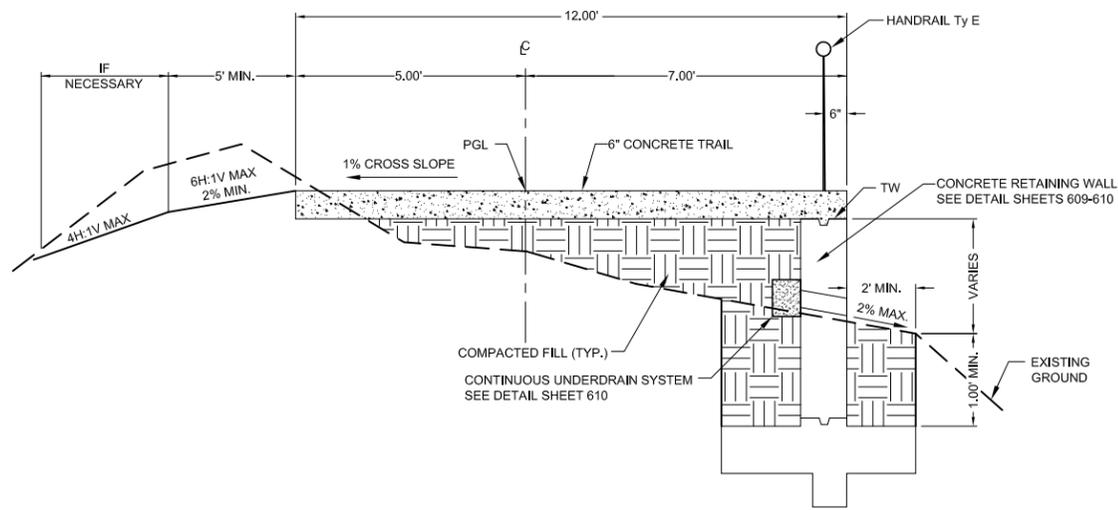
WICHITA FALLS, TEXAS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE WICHITA FALLS, TX 76301 V: (940) 766-0156 F: (940) 766-3383

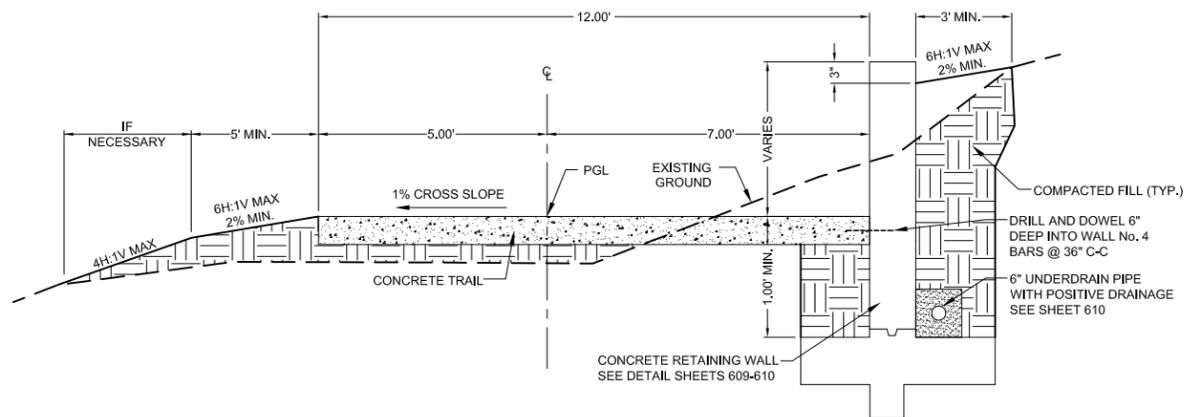
DATE: APRIL 2017
SCALE: 1" = 50'
DWG.: 06 c-102 typical sections.dwg

SHEET
101
OF 42

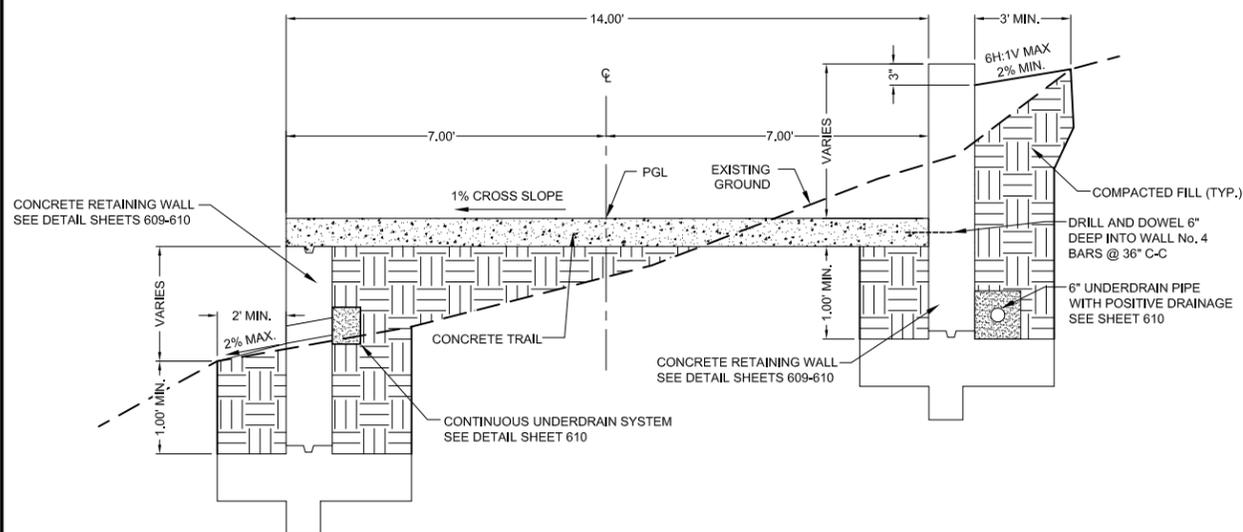
REVISION	DATE	DESCRIPTION



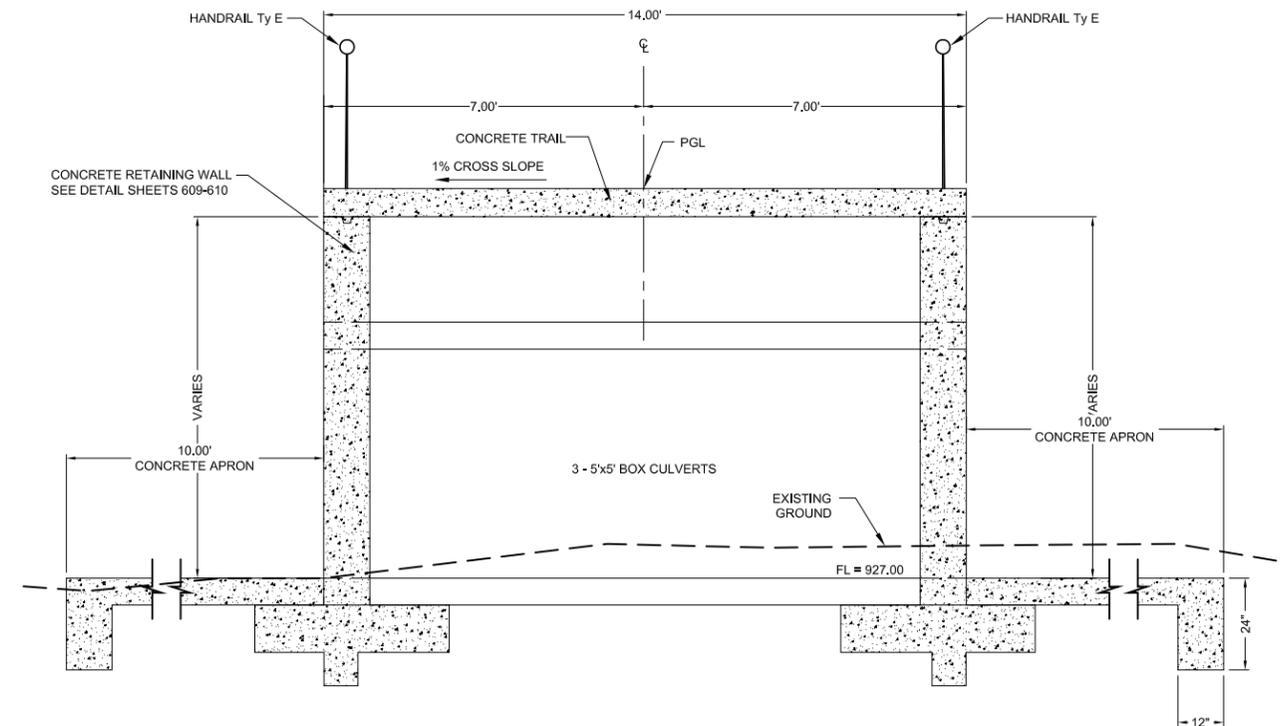
R1 RETAINING WALL SECTION
NOT TO SCALE



R2 RETAINING WALL SECTION
NOT TO SCALE



R3 RETAINING WALL SECTION
NOT TO SCALE



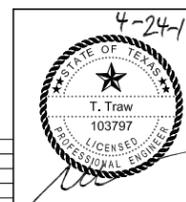
R4 RETAINING WALL SECTION
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 DATE: Apr 24, 2017 12:56pm XREFS: GBS

TYPICAL SECTIONS

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

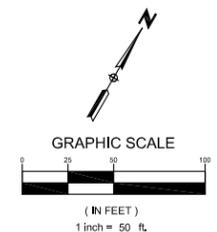
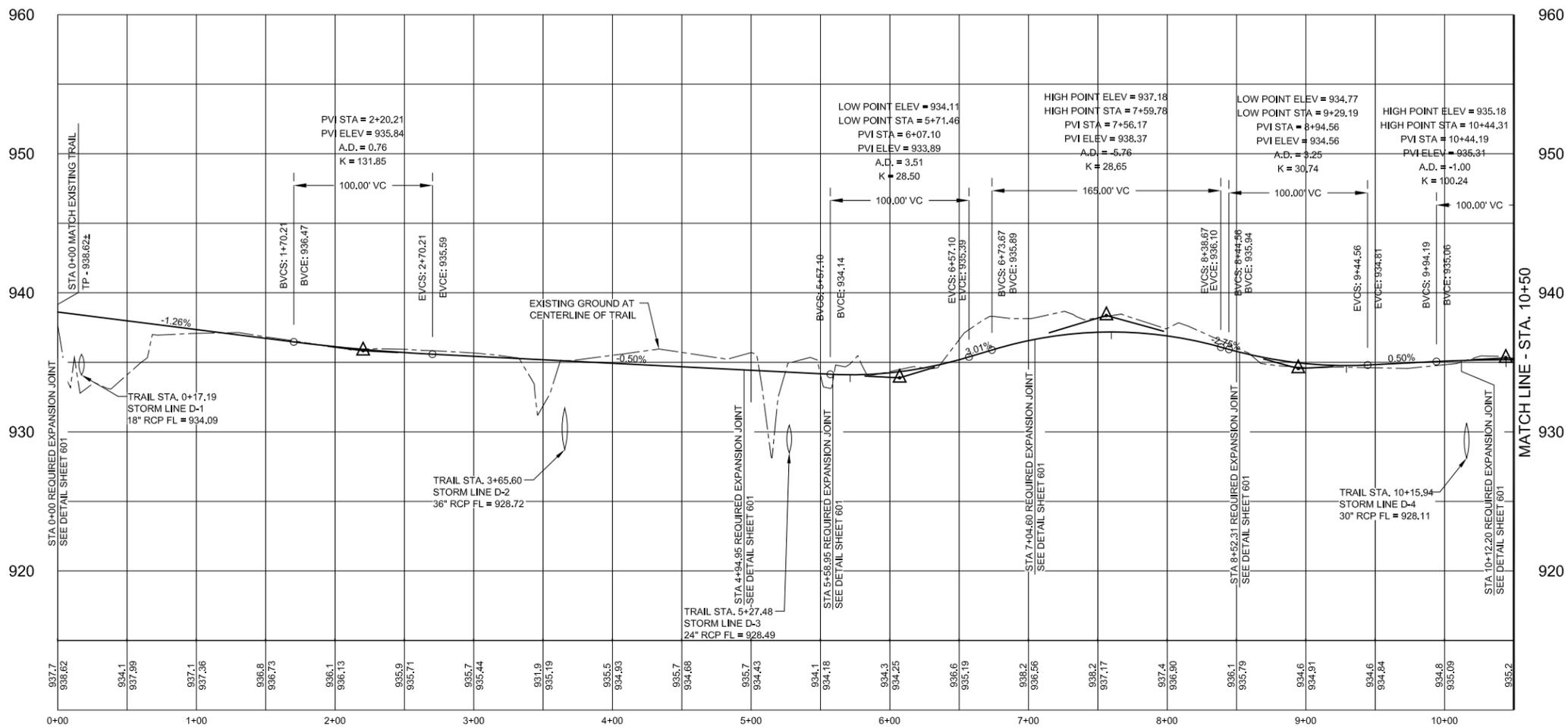
WICHITA FALLS, TEXAS



BIGGS & MATHEWS, INC.
 CONSULTING ENGINEERS / SURVEYORS
 TEXAS REGISTERED ENGINEERING FIRM F-834
 2500 BROOK AVENUE V: (940) 766-0156
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DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	102
CHK. TT	DWG.: 06 c-102 typical sections.dwg	06 OF 42

REVISION	DATE	DESCRIPTION

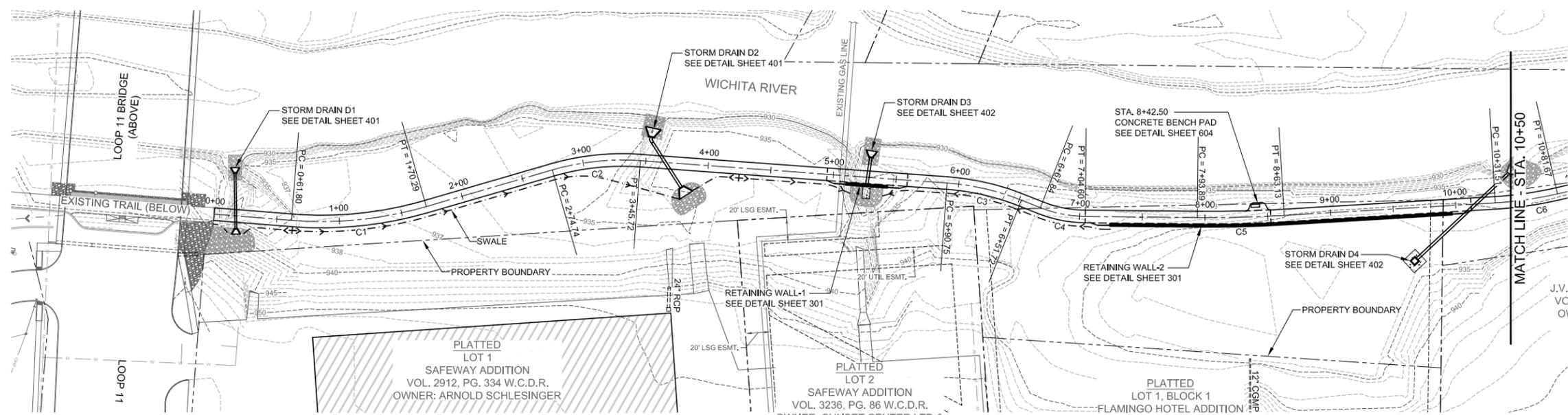


NOTE:
A VERTICAL CURVE WITH A MINIMUM LENGTH OF 10 FEET SHALL BE REQUIRED AT EVERY POINT OF VERTICAL INTERSECTION (PVI) UNLESS SPECIFIED OTHERWISE.

CURVE TABLE								
CURVE	RADIUS	LENGTH	PC STATION	NORTHING	EASTING	PT STATION	NORTHING	EASTING
C1	300.00	108.49	0+51.80	7377544.92	1958464.84	1+170.29	7377608.04	1958552.34
C2	200.00	70.98	2+74.74	7377683.39	1958624.68	3+45.72	7377724.89	1958681.80
C3	200.00	60.96	5+90.75	7377831.67	1958902.34	6+51.72	7377849.53	1958960.69
C4	100.00	36.76	6+67.84	7377851.88	1958976.34	7+04.60	7377863.72	1959010.92
C5	1000.00	69.24	7+93.89	7377907.60	1959088.69	863.13	7377943.68	1959147.76
C6	300.00	50.16	10+31.51	7378036.37	1959288.34	1081.67	7378067.34	1959327.72

SECTION TABLE		
STATION	STATION	SECTION
0+00	2+20	A
2+20	3+35	B
3+35	3+70	C
3+70	5+11	B
5+11	5+43	R1
5+43	7+25	A
7+25	9+96	R1
9+96	10+50	E

SEE SHEETS 101 THRU 102 FOR TYPICAL SECTIONS

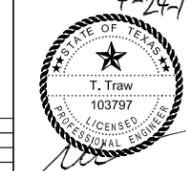


UNPLATTED
6.32 ACRES
J.V. WHEELER SURVEY A-377
VOL. 3310, PG. 370 W.C.D.R.
OWNER: MARK HERMAN & BELLA REA PAULY

TRAIL PLAN & PROFILE
STA.0+00 - 10+50

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

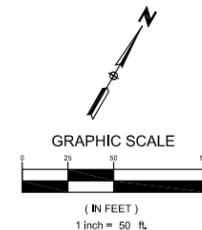
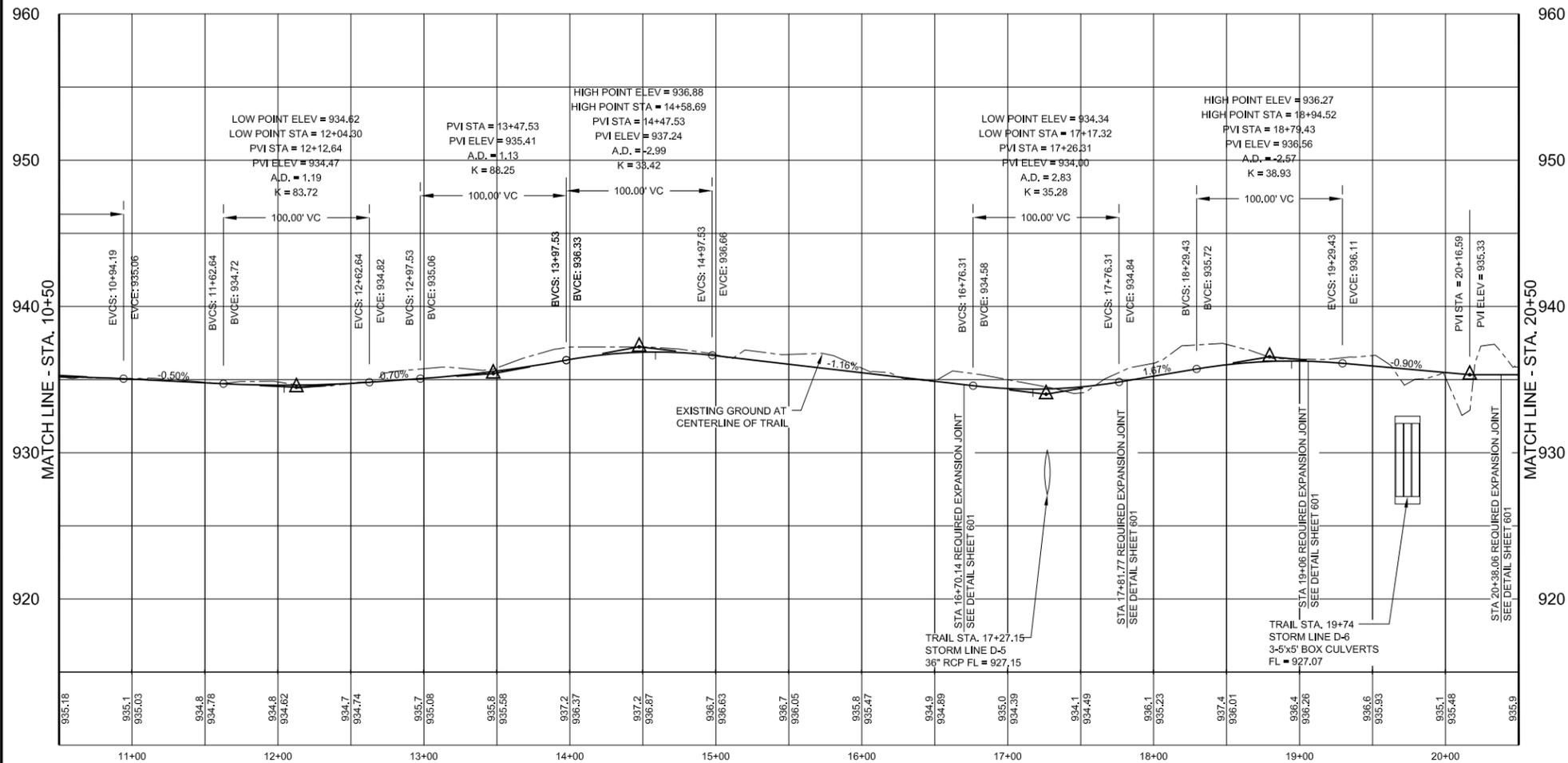


BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE
WICHITA FALLS, TX 76301
V: (940) 766-0156
F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	201
CHK. TT	DWG.: 07 c-201 trail p&p.dwg	07 OF 42

DWG: F:\03_Projects\2012\2012-057\Cidwg\07 C-201 TRAIL P&P.dwg USER: rignam
 DATE: Apr 24, 2017 12:56pm XREFS: GBS BASE CONTOURS PROF-TRAIL

REVISION	DATE	DESCRIPTION

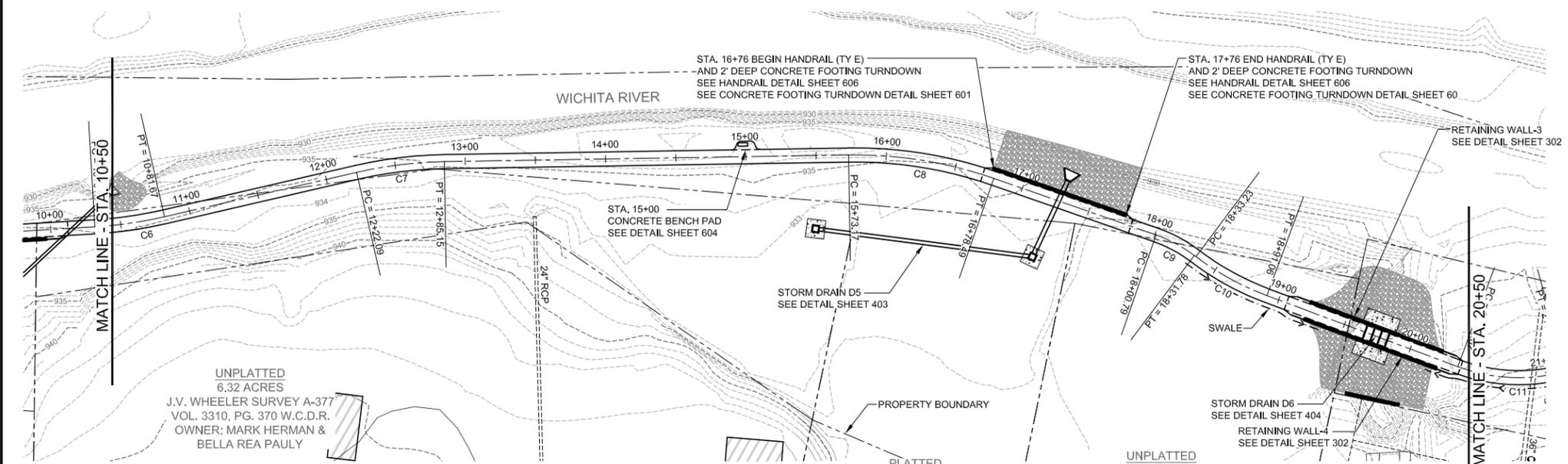


TRAIL PROFILE (10+50 - 20+50)

SCALE: H 1" = 50'
V 1" = 5'

CURVE TABLE

CURVE	RADIUS	LENGTH	PC STATION	NORTHING	EASTING	PT STATION	NORTHING	EASTING
C6	300.00	50.16	10+31.51	7378036.37	1959288.34	10+61.67	7378067.34	1959327.72
C7	300.00	63.06	12+22.89	7378163.07	1959430.46	12+85.95	7378200.91	1959480.75
C8	300.00	105.32	15+73.17	7378348.97	1959727.80	16+78.49	7378386.31	1959825.70
C9	100.00	30.99	18+00.79	7378409.26	1959945.83	18+31.78	7378410.31	1959976.68
C10	200.00	57.83	18+33.23	7378410.13	1959978.12	18+91.06	7378411.49	1960035.73
C11	125.00	78.19	20+36.07	7378435.75	1960178.69	21+14.26	7378471.33	1960246.86



SECTION TABLE

STATION	STATION	SECTION
10+50	16+76	E
16+76	17+76	G
17+76	18+30	D
18+30	19+22	B
19+22	20+22	R4
20+22	20+50	A

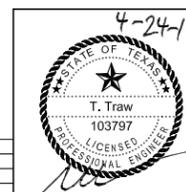
SEE SHEETS 101 THRU 102 FOR TYPICAL SECTIONS

TRAIL PLAN & PROFILE
STA. 10+50 - 20+50

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

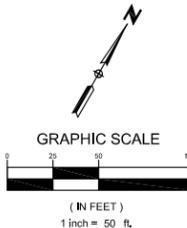
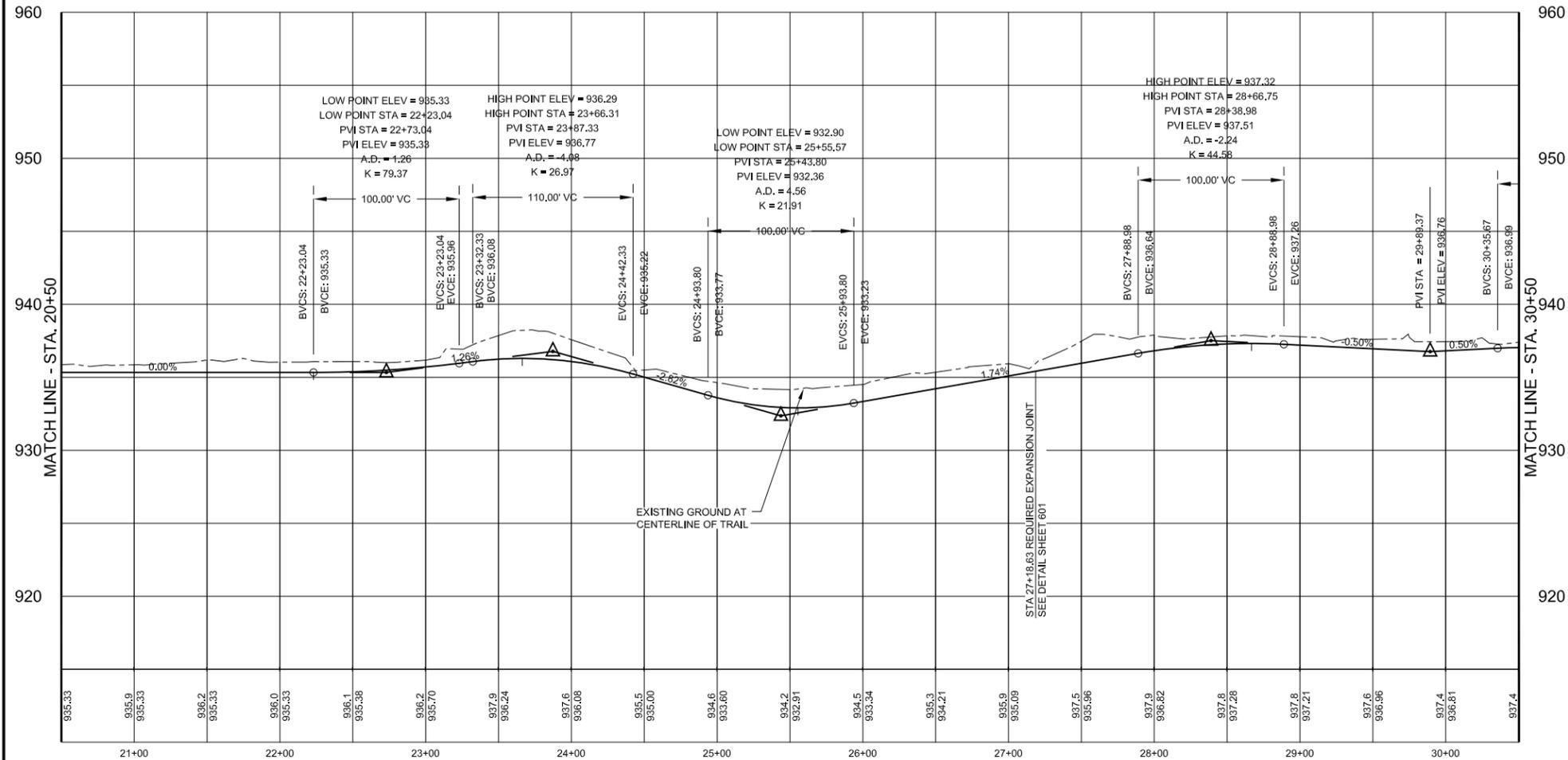
WICHITA FALLS, TEXAS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383



DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	202
CHK. TT	DWG.: 07 c-201 trail p&p.dwg	08 OF 42

DWG: F:\03_Projects\2012\057\07 C-201 TRAIL P&P.dwg USER: rlgamm
 DATE: Apr 24, 2017 12:57pm XREFS: GBS BASE CONTOURS PROF-TRAIL

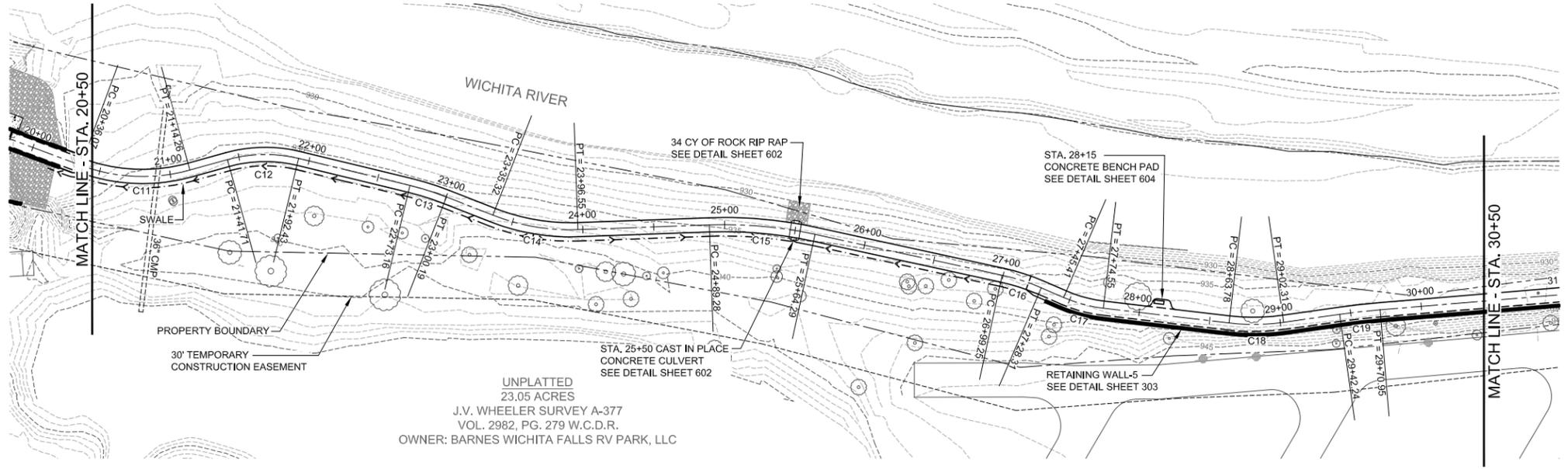


NOTE:
A VERTICAL CURVE WITH A MINIMUM LENGTH OF 10 FEET SHALL BE REQUIRED AT EVERY POINT OF VERTICAL INTERSECTION (PVI) UNLESS SPECIFIED OTHERWISE.

TRAIL PROFILE (20+50 - 30+50)

SCALE: H 1" = 50'
V 1" = 5'

CURVE TABLE								
CURVE	RADIUS	LENGTH	PC STATION	NORTHING	EASTING	PT STATION	NORTHING	EASTING
C11	125.00	78.19	20+36.07	7378435.75	1960178.69	21+14.26	7378471.33	1960246.86
C12	100.00	50.72	21+41.71	7378490.90	1960206.14	21+92.43	7378516.70	1960309.18
C13	200.00	27.02	22+73.16	7378539.51	1960386.62	23+00.19	7378545.38	1960412.98
C14	150.00	61.23	23+35.32	7378550.67	1960447.72	23+96.55	7378571.83	1960504.72
C15	300.00	75.01	24+89.28	7378621.05	1960583.31	25+64.29	7378652.55	1960651.17
C16	150.00	29.06	26+99.25	7378693.66	1960779.72	27+28.31	7378699.78	1960808.08
C17	100.00	29.14	27+45.41	7378701.76	1960825.07	27+74.55	7378709.28	1960853.11
C18	150.00	38.53	28+63.78	7378744.59	1960935.05	29+02.31	7378764.20	1960968.09
C19	500.00	28.71	29+42.24	7378788.81	1960999.54	29+70.95	7378805.85	1961022.65



SECTION TABLE		
STATION	STATION	SECTION
20+50	27+35	A
27+35	30+50	R2

SEE SHEETS 101 THRU 102 FOR TYPICAL SECTIONS

TRAIL PLAN & PROFILE STA. 20+50 - 30+50

HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS



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2500 BROOK AVENUE WICHITA FALLS, TX 76301 V: (940) 766-0156 F: (940) 766-3383

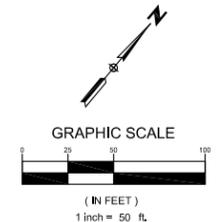
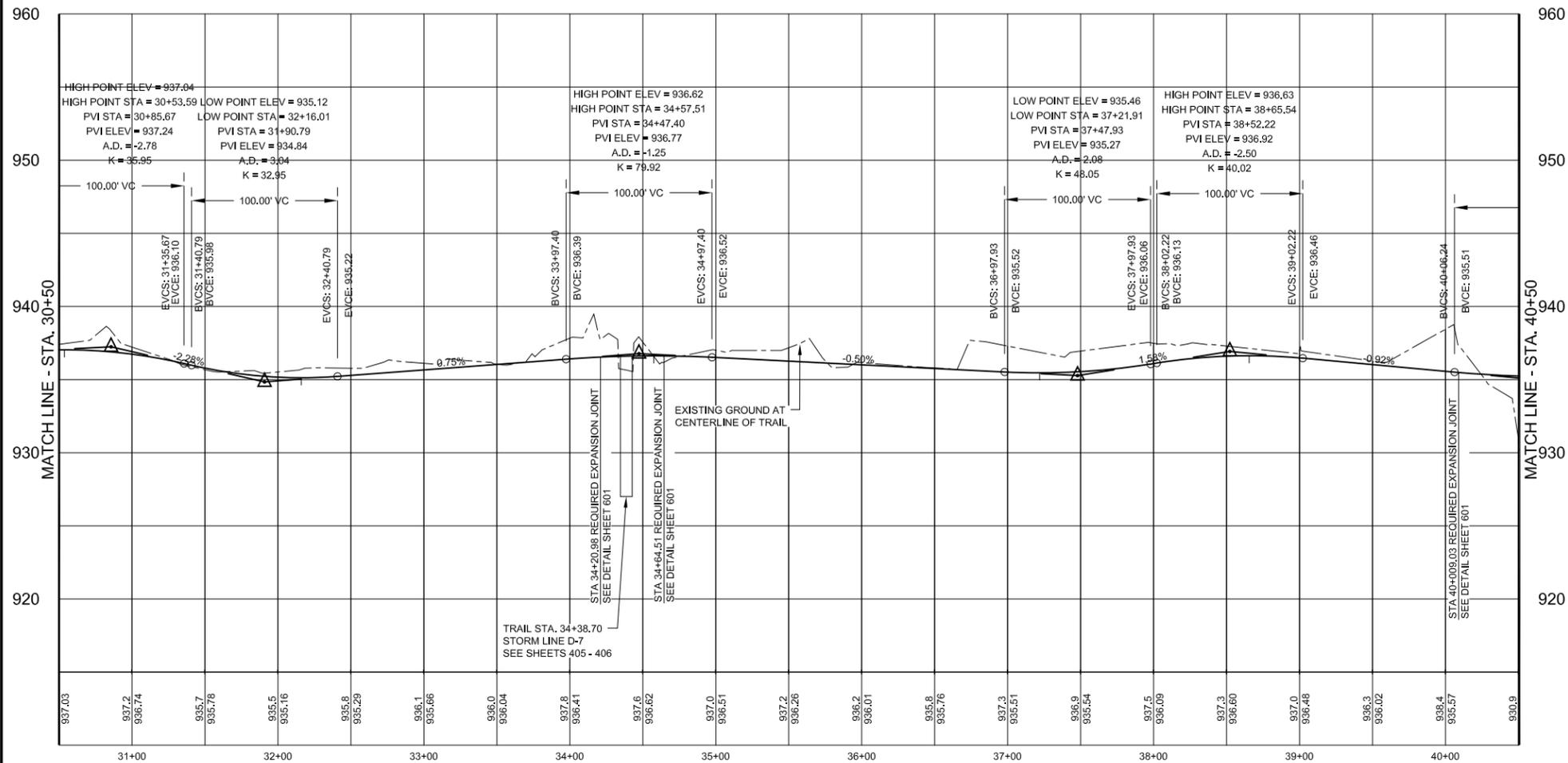
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	203
CHK. TT	DWG.: 07 c-201 trail p&p.dwg	09 OF 42

DWG: F:\03_Projects\2012\2012-057\Cidwg\07 C-201 TRAIL P&P.dwg USER: rlgamm
 DATE: Apr 24, 2017 12:57pm XREFS: GBS BASE CONTOURS PROF-TRAIL

TRAIL PLAN (20+50 - 30+50)

SCALE: H 1" = 50'

REVISION	DATE	DESCRIPTION

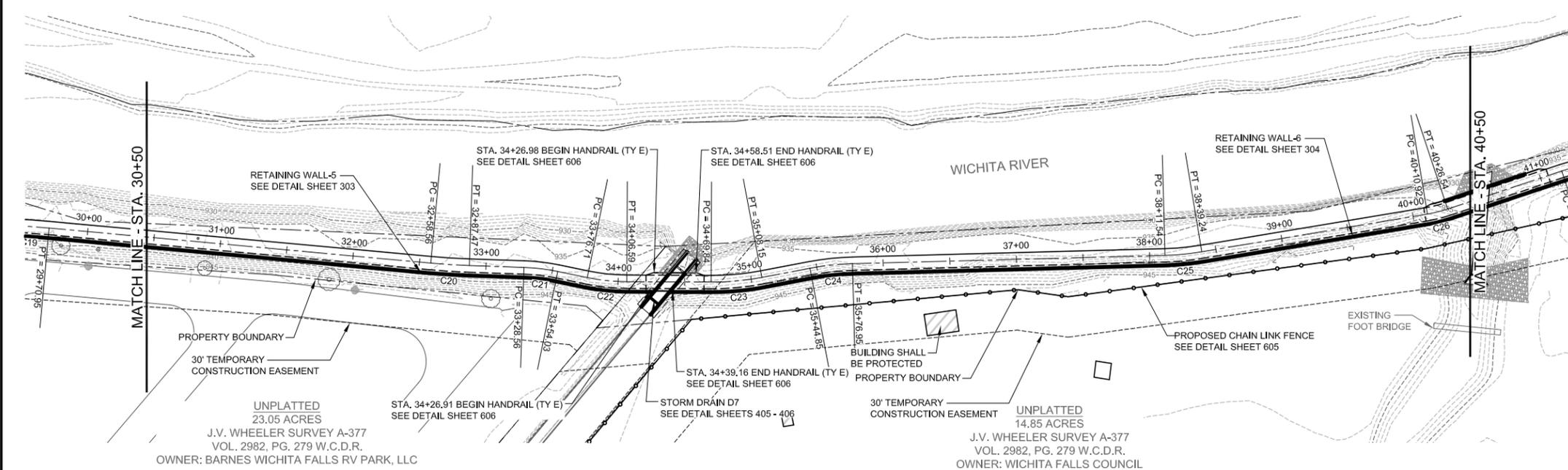


NOTE:
A VERTICAL CURVE WITH A MINIMUM LENGTH OF 10 FEET SHALL BE REQUIRED AT EVERY POINT OF VERTICAL INTERSECTION (PVI) UNLESS SPECIFIED OTHERWISE.

TRAIL PROFILE (30+50 - 40+50)

SCALE: H 1" = 50'
V 1" = 5'

CURVE	RADIUS	LENGTH	PC STATION	NORTHING	EASTING	PT STATION	NORTHING	EASTING
C20	500.00	28.91	32+58.56	737898.81	1961258.95	32+97.47	737898.96	1961282.21
C21	150.00	25.47	33+28.56	7379012.30	1961314.56	33+54.03	7379026.23	1961335.84
C22	150.00	29.88	33+76.71	7379037.00	1961355.81	34+06.59	7379053.70	1961380.52
C23	200.00	38.31	34+09.84	7379094.14	1961429.15	35+08.15	7379121.30	1961456.09
C24	200.00	32.10	35+44.85	7379149.71	1961479.32	35+76.95	7379172.83	1961501.54
C25	200.00	27.70	38+11.54	7379328.36	1961677.16	38+39.24	7379348.10	1961696.56
C26	100.00	15.62	40+10.92	7379478.58	1961808.14	40+26.54	7379491.20	1961817.32



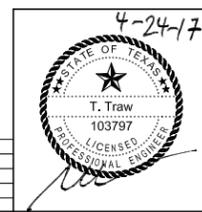
STATION	STATION	SECTION
30+50	34+20	R2
34+20	34+65	SEE SHEETS 405-406
34+65	40+26	R3
40+26	40+50	R2

SEE SHEETS 101 THRU 102 FOR TYPICAL SECTIONS

TRAIL PLAN & PROFILE STA. 30+50 - 40+50

HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS



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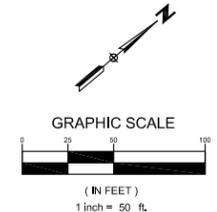
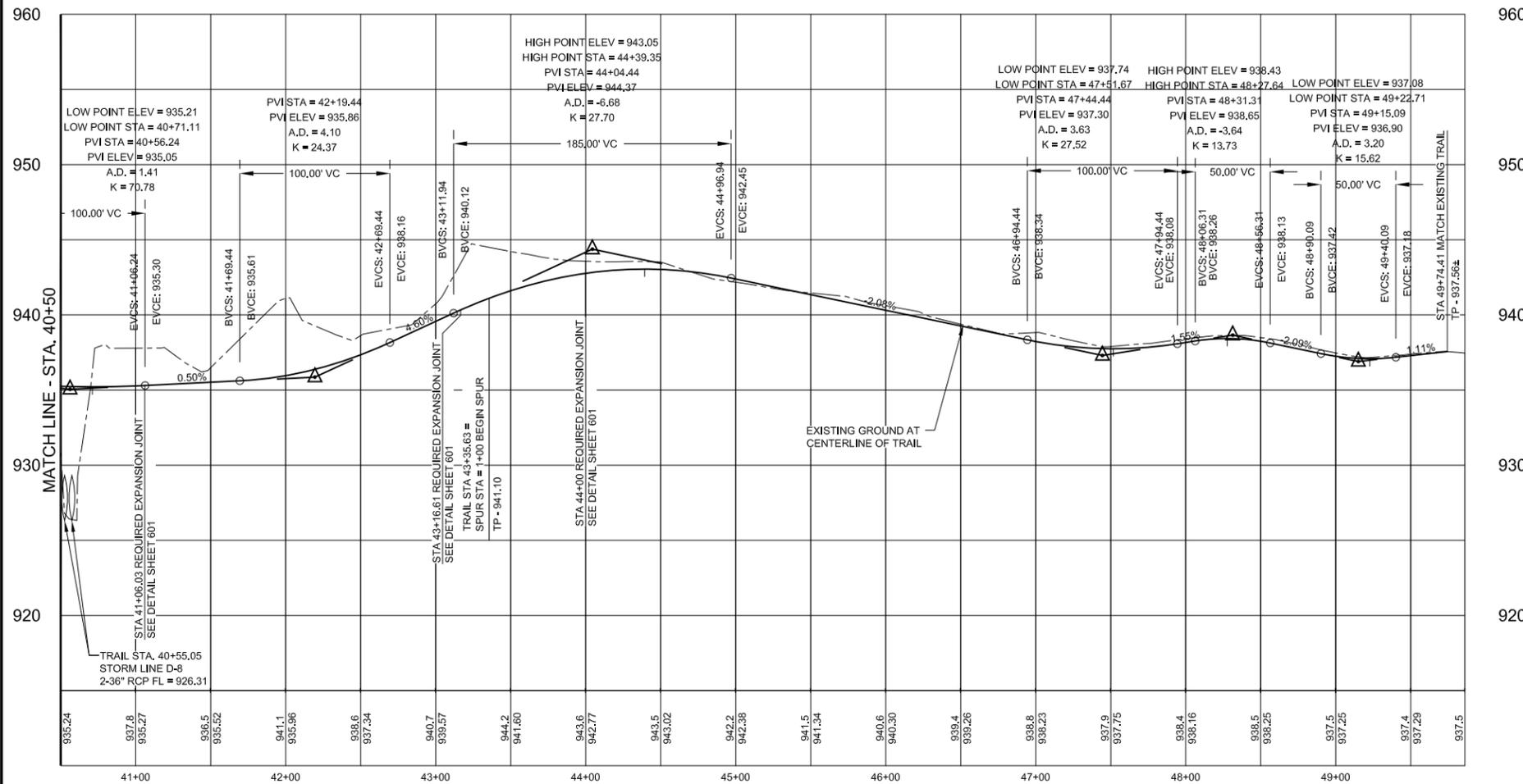
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	204
CHK. TT	DWG.: 07 c-201 trail p&p.dwg	10 OF 42

DWG: F:\03_Projects\2012\2012-057\Cidwg\07 C-201 TRAIL P&P.dwg USER: ngamm
 DATE: Apr 24, 2017 12:57pm XREFS: GBS BASE CONTOURS PROF-TRAIL

TRAIL PLAN (30+50 - 40+50)

SCALE: H 1" = 50'

REVISION	DATE	DESCRIPTION

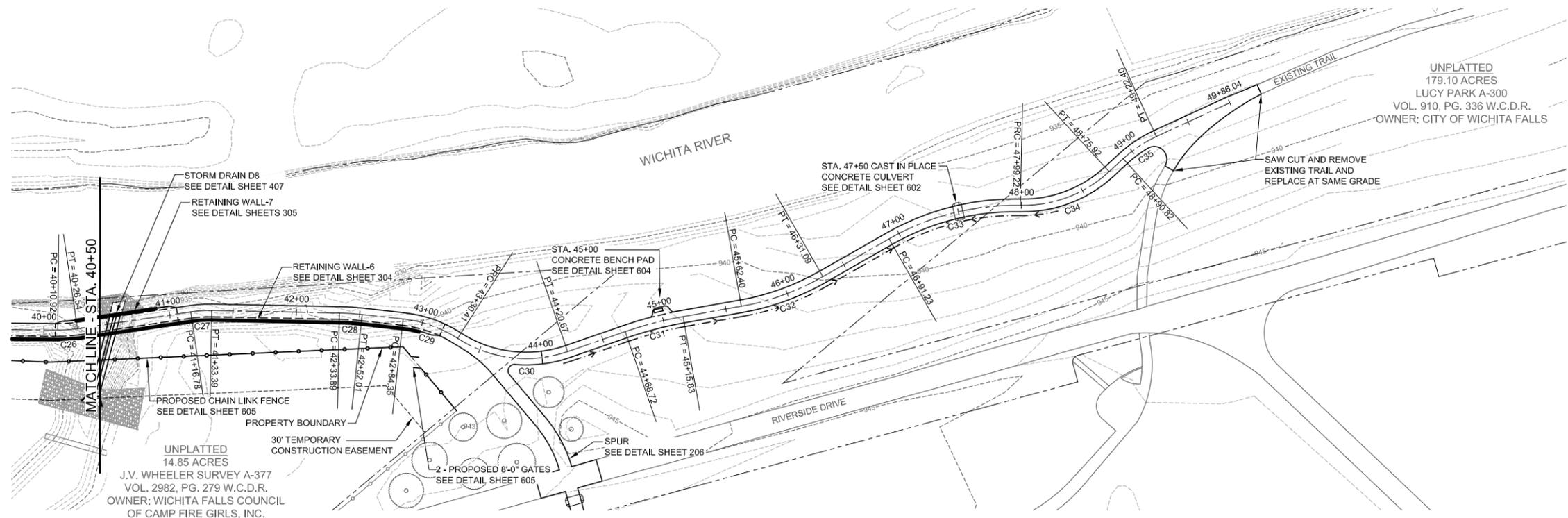


NOTE:
A VERTICAL CURVE WITH A MINIMUM LENGTH OF 10 FEET SHALL BE REQUIRED AT EVERY POINT OF VERTICAL INTERSECTION (PVI) UNLESS SPECIFIED OTHERWISE.

TRAIL PROFILE (40+50 - END)

SCALE: H 1" = 50'
V 1" = 5'

CURVE TABLE								
CURVE	RADIUS	LENGTH	PC STATION	NORTHING	EASTING	PT STATION	NORTHING	EASTING
C27	100.00	16.62	41+16.78	7379568.07	1961864.58	41+33.39	7379581.43	1961874.42
C28	200.00	16.13	42+33.89	7379557.16	1961940.49	42+52.01	7379570.26	1961953.01
C29	100.00	48.06	42+84.35	7379692.60	1961976.38	43+30.41	7379715.77	1962015.71
C30	100.00	90.26	43+30.41	7379715.77	1962015.71	44+20.67	7379775.45	1962079.33
C31	300.00	47.11	44+68.72	7379820.33	1962096.53	45+15.83	7379862.81	1962116.77
C32	200.00	68.69	45+62.40	7379903.16	1962140.03	46+31.09	7379967.34	1962163.55
C33	200.00	107.99	46+91.23	7380026.51	1962174.29	47+99.22	7380122.59	1962220.65
C34	100.00	76.71	47+99.22	7380122.59	1962220.65	48+75.92	7380193.24	1962245.33
C35	100.00	31.68	48+90.82	7380208.12	1962244.62	49+22.40	7380239.38	1962248.08



SECTION TABLE		
STATION	STATION	SECTION
40+50	40+90	R3
40+90	43+00	R2
43+00	43+40	D
43+40	44+15	F
44+15	44+60	B
44+60	48+27	A
48+27	49+86.04	D

SEE SHEETS 101 THRU 102 FOR TYPICAL SECTIONS

TRAIL PLAN & PROFILE STA. 40+50 - END

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS



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2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383

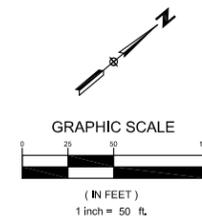
DN, TT	DATE: APRIL 2017	SHEET
DW, NG	SCALE: 1" = 50'	205
CHK, TT	DWG.: 07 c-201 trail p&p.dwg	11 OF 42

DWG: F:\03_Projects\2012\2012-057\Cidwg\07 C-201 TRAIL P&P.dwg USER: rlgamm
 DATE: Apr 24, 2017 12:57pm XREFS: GBS BASE CONTOURS PROF-TRAIL

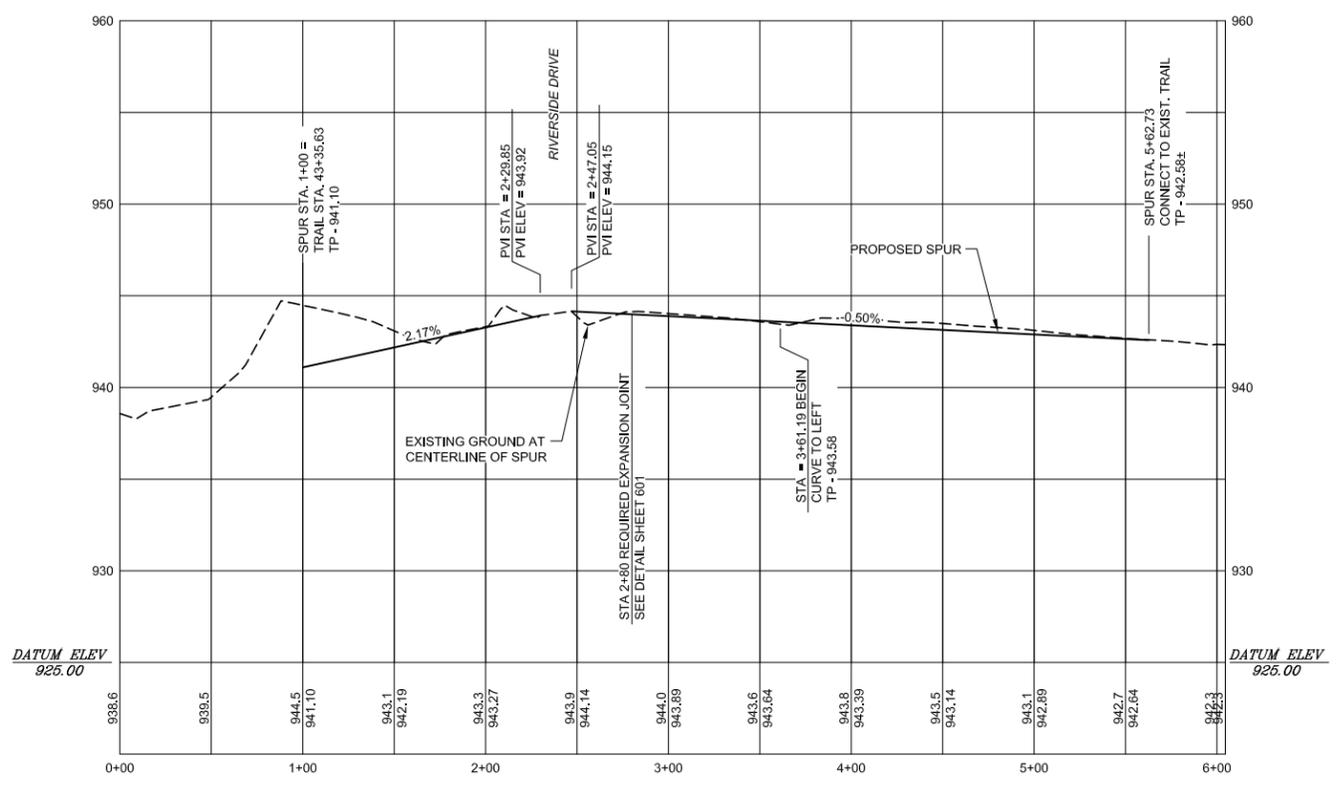
TRAIL PLAN (40+50 - END)

SCALE: H 1" = 50'

REVISION	DATE	DESCRIPTION

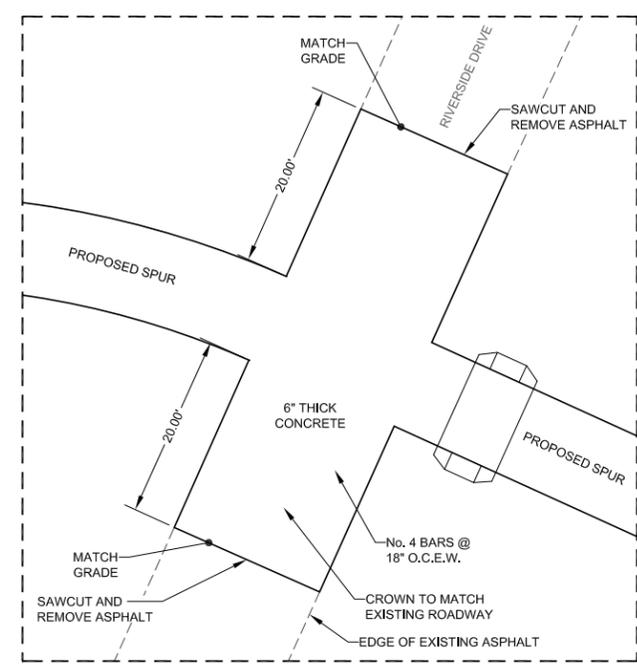


NOTE:
A VERTICAL CURVE WITH A MINIMUM LENGTH OF 10 FEET
SHALL BE REQUIRED AT EVERY POINT OF VERTICAL
INTERSECTION (PVI) UNLESS SPECIFIED OTHERWISE.



SPUR PROFILE (0+00 - END)

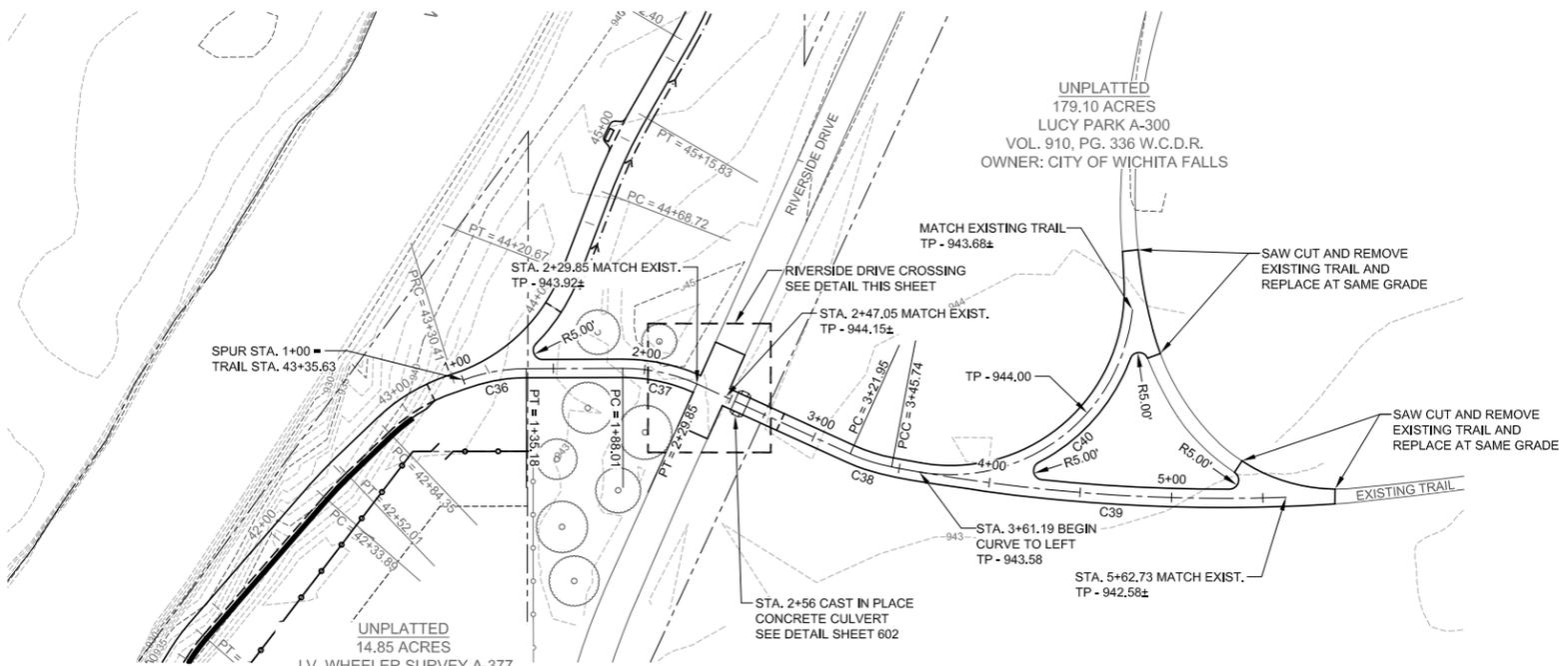
SCALE: H 1" = 50'
V 1" = 5'



RIVERSIDE DRIVE CROSSING DETAIL

SCALE: 1" = 10'-0"

CURVE TABLE								
CURVE	RADIUS	LENGTH	PC STATION	NORTHING	EASTING	PT STATION	NORTHING	EASTING
C36	100.00	35.18	1+00.00	7379717.46	1962020.66	1+35.18	7379723.67	1962055.10
C37	100.00	41.84	1+88.01	7379723.82	1962107.93	2+29.85	7379715.30	1962148.58
C38	100.05	23.79	3+21.95	7379677.25	1962232.46	3+45.74	7379670.07	1962255.08
C39	972.00	218.99	3+45.74	7379670.07	1962255.08	5+62.73	7379653.51	1962470.98
C40	100.00	164.28	3+61.19	7379667.30	1962270.28	-	7379755.82	1962386.91



SPUR PLAN (0+00 - END)

SCALE: H 1" = 50'

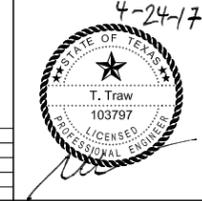
SECTION TABLE		
STATION	STATION	SECTION
1+00	2+30	F
2+47	2+73	C
2+73	3+35	F
3+35	3+75	C
3+75	5+62.73	F

SEE SHEETS 101 THRU 102 FOR TYPICAL SECTIONS

SPUR PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

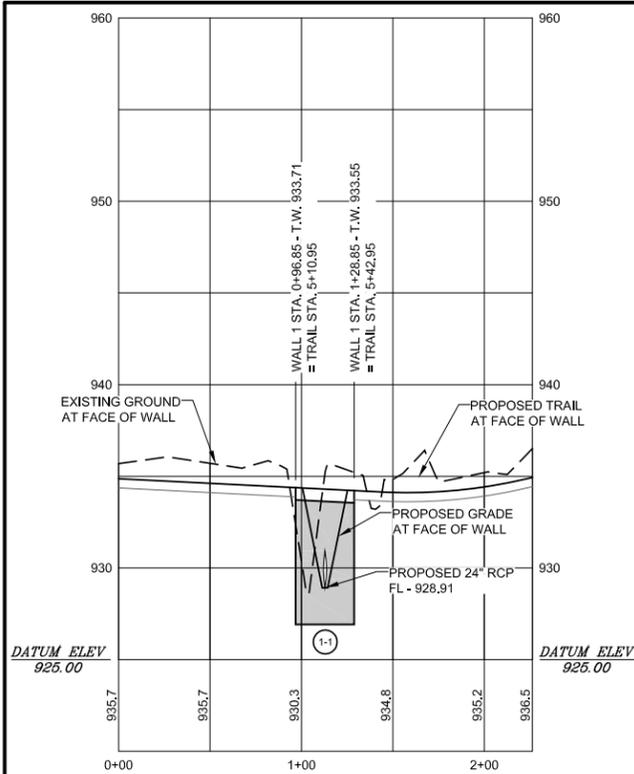


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DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	206
CHK. TT	DWG.: 07 c-201 trail p&p.dwg	12 OF 42

DWG: F:\03_Projects\2012\2012-057\Cidwg\07 C-201 TRAIL P&P.dwg USER: rlgamm
 DATE: Apr 24, 2017 12:57pm XREFS: GBS BASE CONTOURS PROF-TRAIL

REVISION	DATE	DESCRIPTION

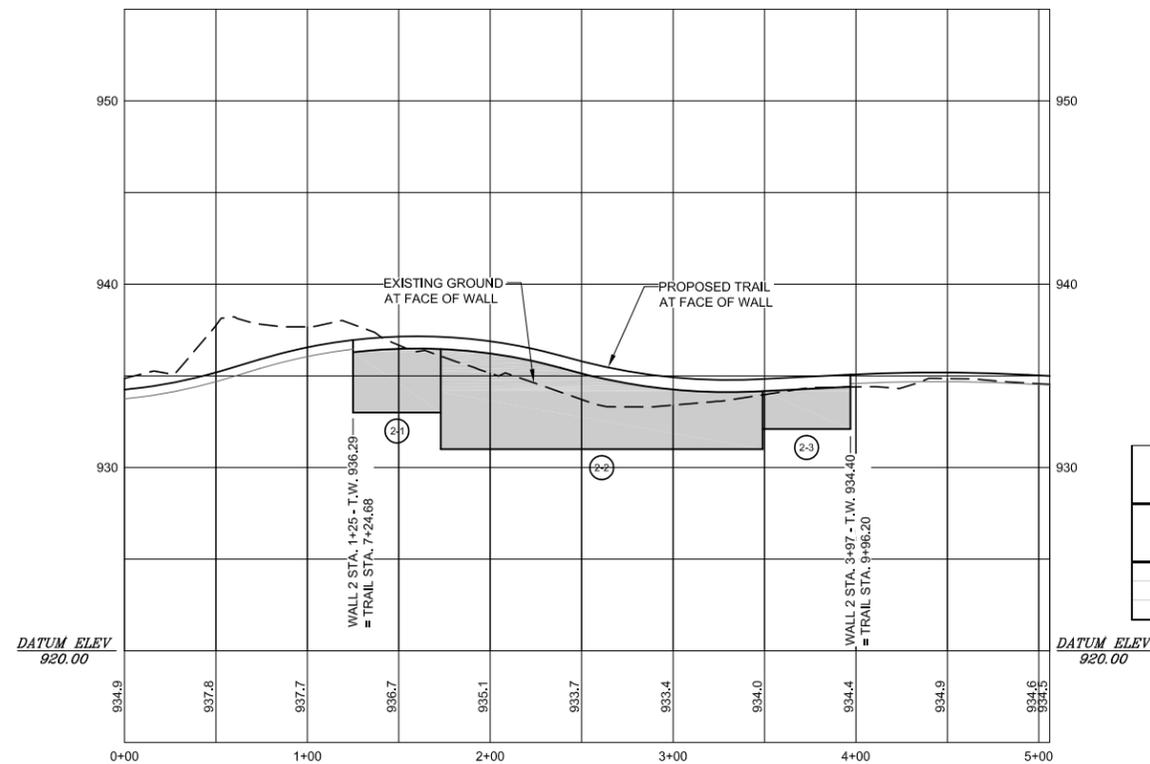


PANEL INDEX: RETAINING WALL 1 (CONCRETE WALL)			
ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
1-1	7	926.91	32

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609

CONCRETE RETAINING WALL 1 PROFILE

SCALE: H 1" = 50'
V 1" = 5'

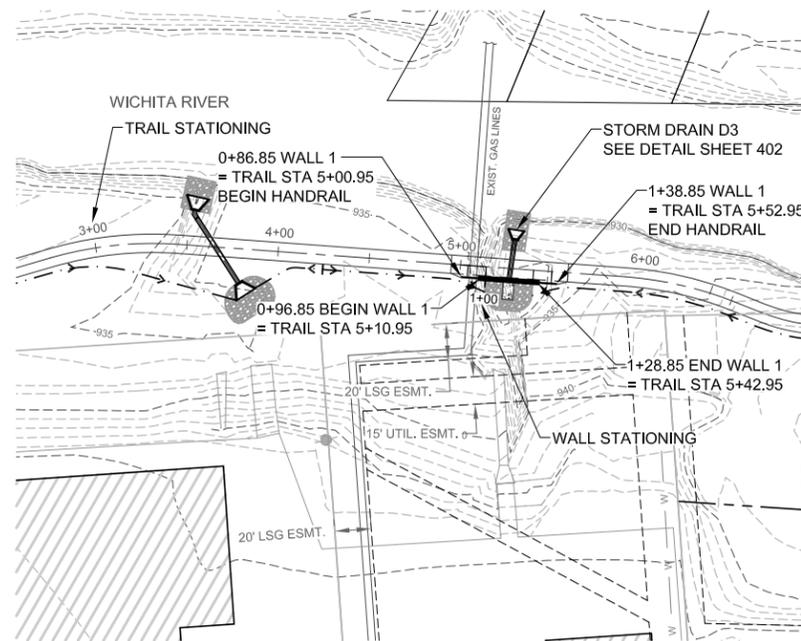


PANEL INDEX: RETAINING WALL 2 (CONCRETE WALL)			
ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
2-1	4	933.00	48
2-2	6	931.00	176
2-3	3	932.10	48

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609

CONCRETE RETAINING WALL 2 PROFILE

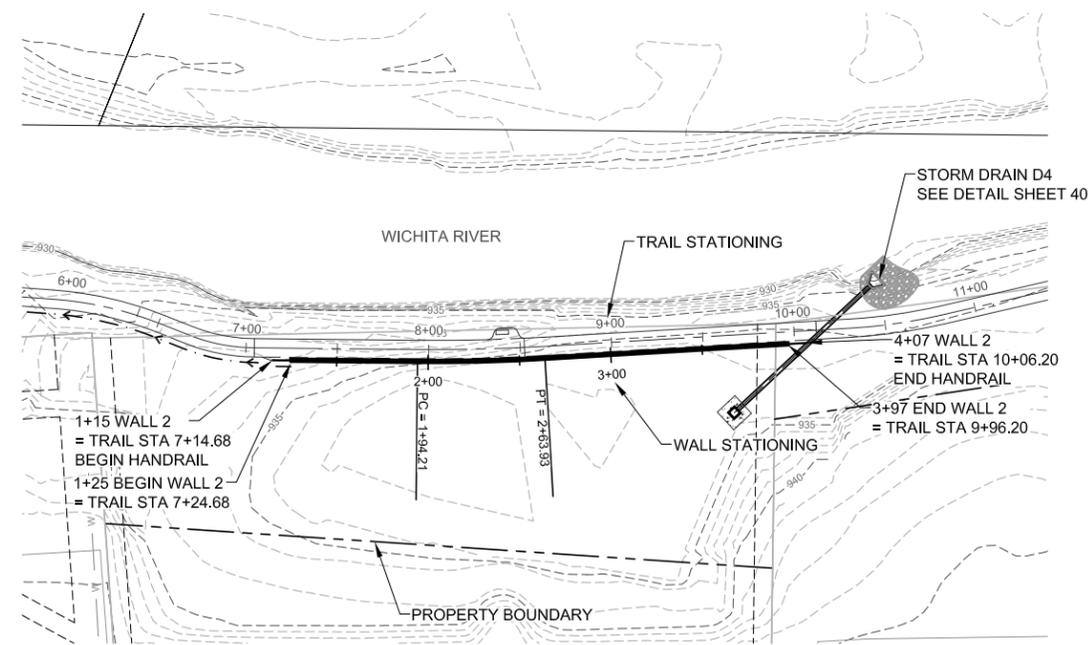
SCALE: H 1" = 50'
V 1" = 5'



CONCRETE RETAINING WALL 1 PLAN

SCALE: H 1" = 50'

NOTE: THE UNDER DRAIN SYSTEM IS NOT REQUIRED FOR WALL 1



CONCRETE RETAINING WALL 2 PLAN

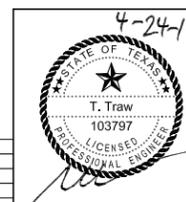
SCALE: H 1" = 50'

NOTE: THE UNDER DRAIN SYSTEM IS NOT REQUIRED FOR WALL 2

RETAINING WALL 1 & 2 PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

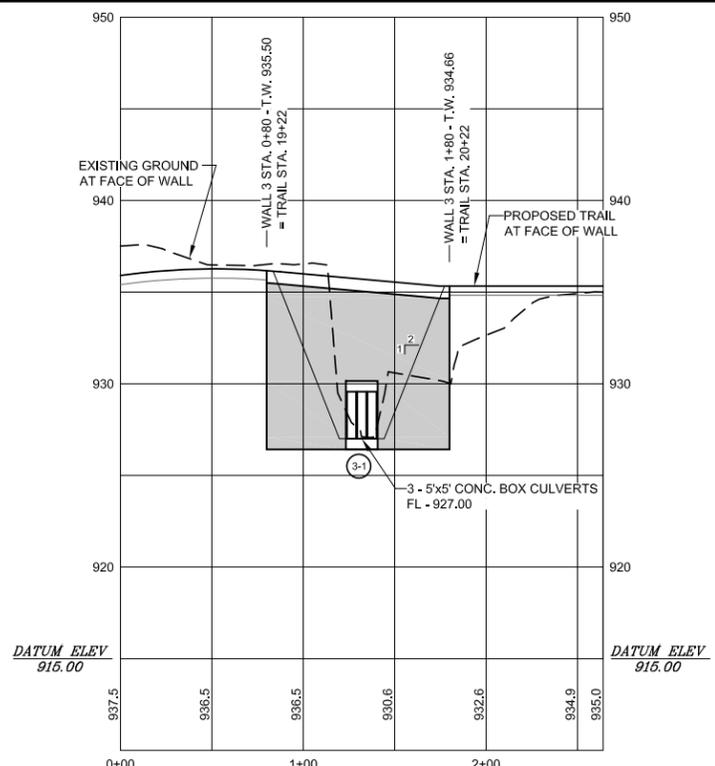
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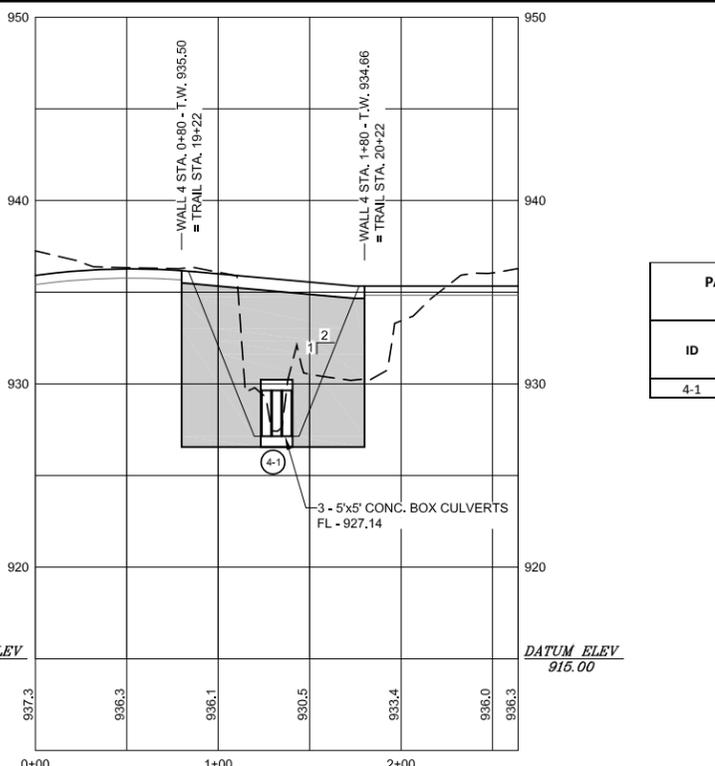
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	301
CHK. TT	DWG.: 13-c-301-rw-p&p.dwg	13 OF 42

REVISION	DATE	DESCRIPTION



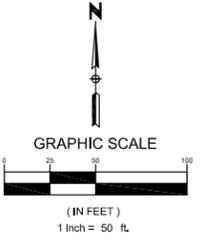
PANEL INDEX: RETAINING WALL 3 (CONCRETE WALL)			
ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
3-1	10	926.42	100

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609



PANEL INDEX: RETAINING WALL 4 (CONCRETE WALL)			
ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
4-1	9	926.56	100

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609



CONCRETE RETAINING WALL 3 PROFILE

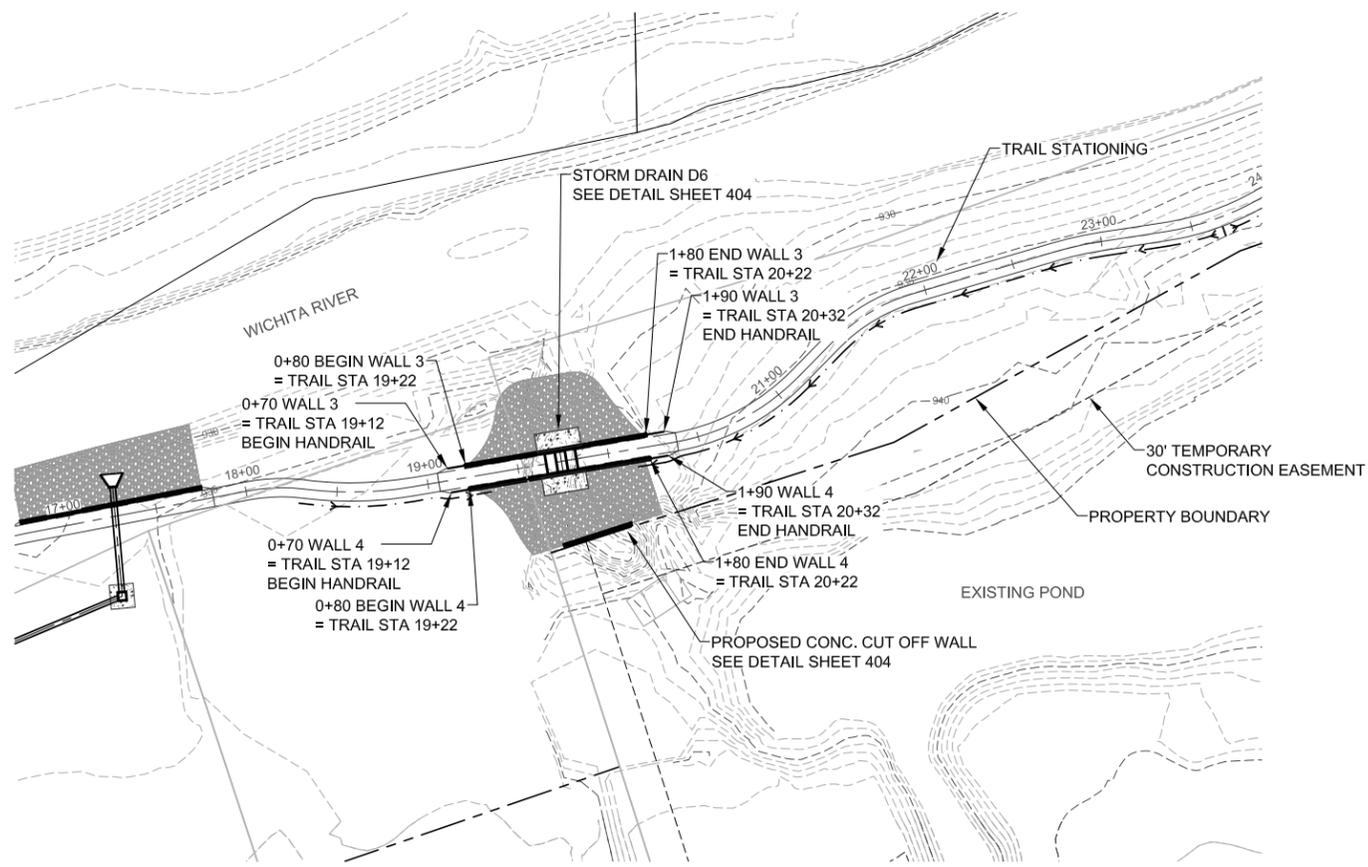
SCALE: H 1" = 50'
V 1" = 5'

NOTE: THE UNDER DRAIN SYSTEM IS NOT REQUIRED FOR WALL 3

CONCRETE RETAINING WALL 4 PROFILE

SCALE: H 1" = 50'
V 1" = 5'

NOTE: THE UNDER DRAIN SYSTEM IS NOT REQUIRED FOR WALL 4



RETAINING WALL 3 & 4 PLAN

SCALE: H 1" = 50'

RETAINING WALL 3 & 4 PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

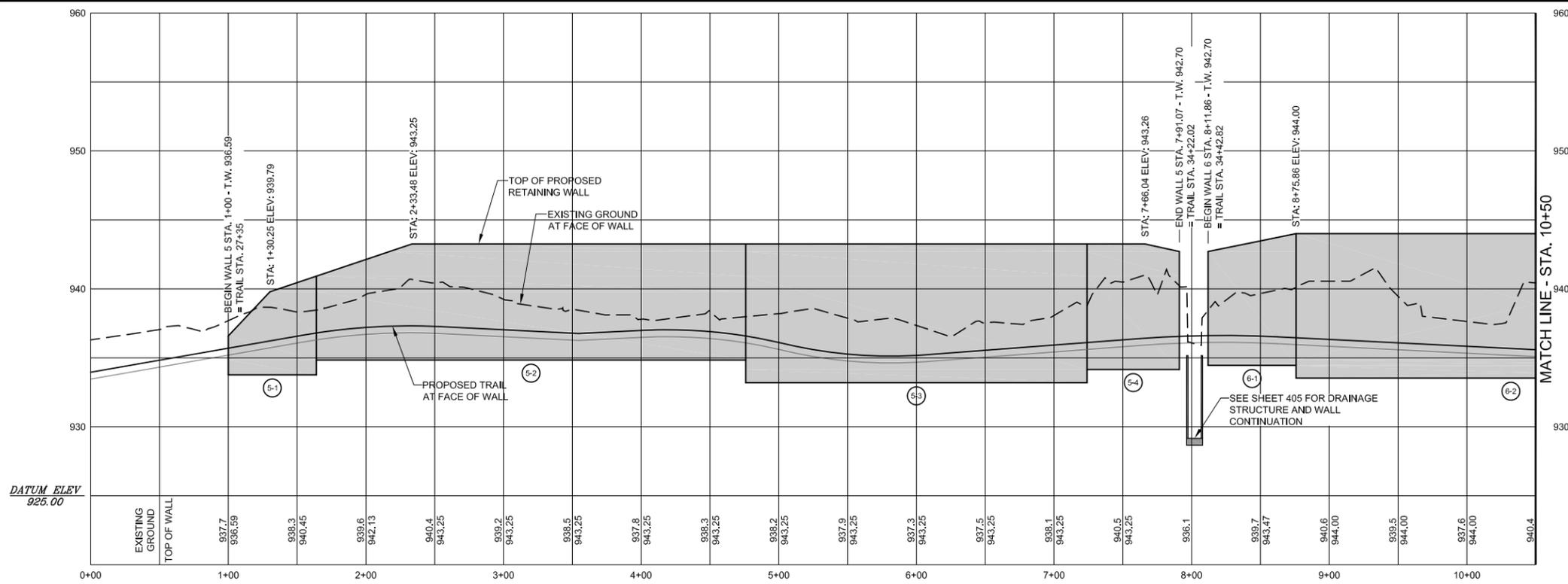
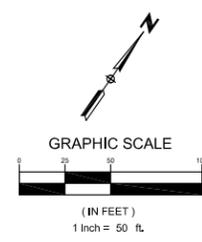


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DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	302
CHK. TT	DWG.: 13-c-301 rw p&p.dwg	14 OF 42

DWG: F:\03_Projects\2012\2012-057\Cldwg\13 C-301 RW P&P.dwg USER: rgnamm
 DATE: Apr 24, 2017 12:58pm XREFS: GBS BASE CONTOURS PROF-TRAIL

REVISION	DATE	DESCRIPTION



CONCRETE RETAINING WALL 5 & 6 PROFILE

SCALE: H 1" = 50'
V 1" = 5'

NOTE: WALL 5 UNDER DRAIN SHALL USE THE CONTINUOUS PIPE SYSTEM AS SHOWN ON SHEET 610. THE UNDER DRAIN PIPE SHALL DRAIN TO STORM DRAIN D7

PANEL INDEX: RETAINING WALL 5 (CONCRETE WALL)

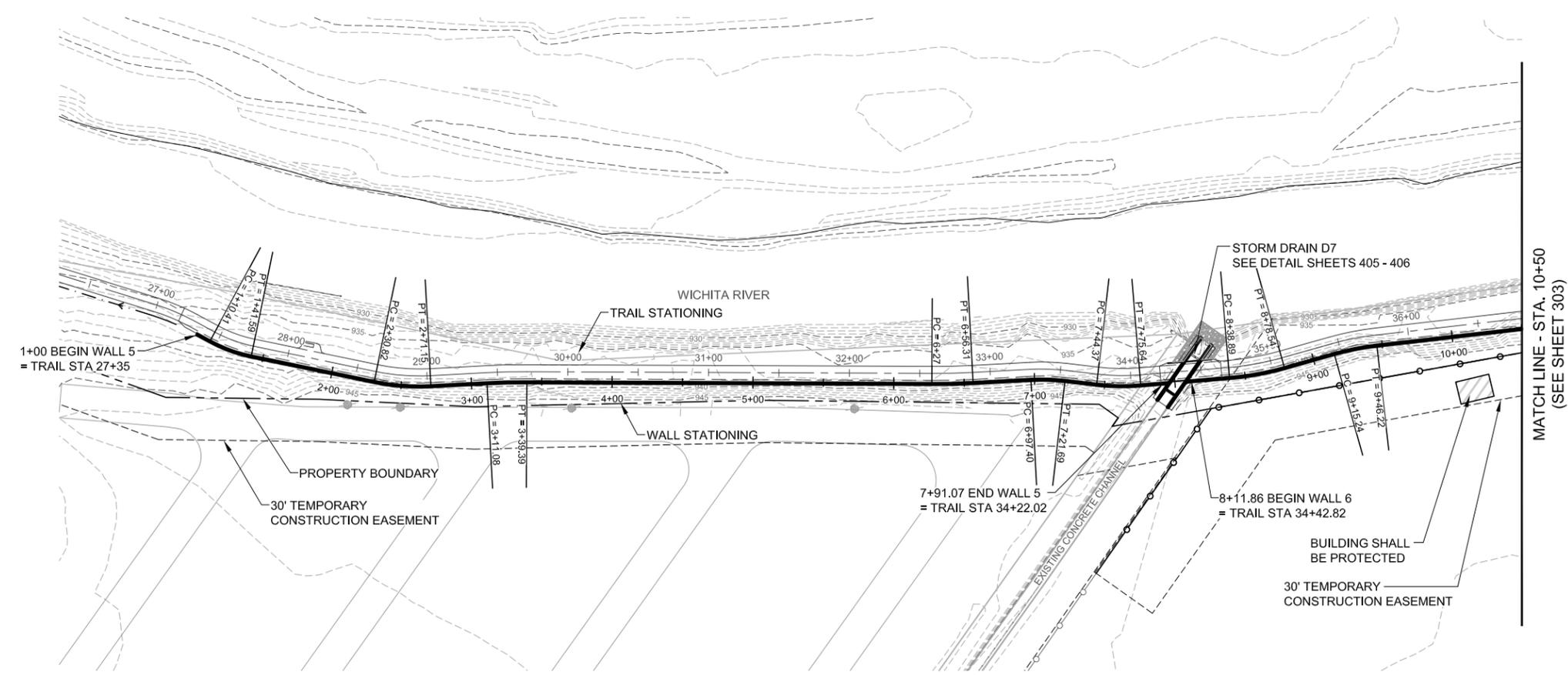
ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
5-1	8	933.77	64
5-2	9	934.84	312
5-3	11	933.20	248
5-4	10	934.16	67

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609

PANEL INDEX: RETAINING WALL 6 (CONCRETE WALL)

ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
6-1	9	934.45	64
6-2	11	933.53	312
6-3	10	934.42	96
6-4	11	933.28	288
6-5	8	934.06	32
6-6	8	934.85	16
6-7	7	935.43	16
6-8	6	936.10	16
6-9	6	936.83	16

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609



RETAINING WALL 5 & 6 PLAN

SCALE: H 1" = 50'

F:\03_Projects\2012\2012-057\Cldwgl13 C-301 RW P&P.dwg

REVISION	DATE	DESCRIPTION



RETAINING WALL 5 & 6 PLAN & PROFILE

HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK

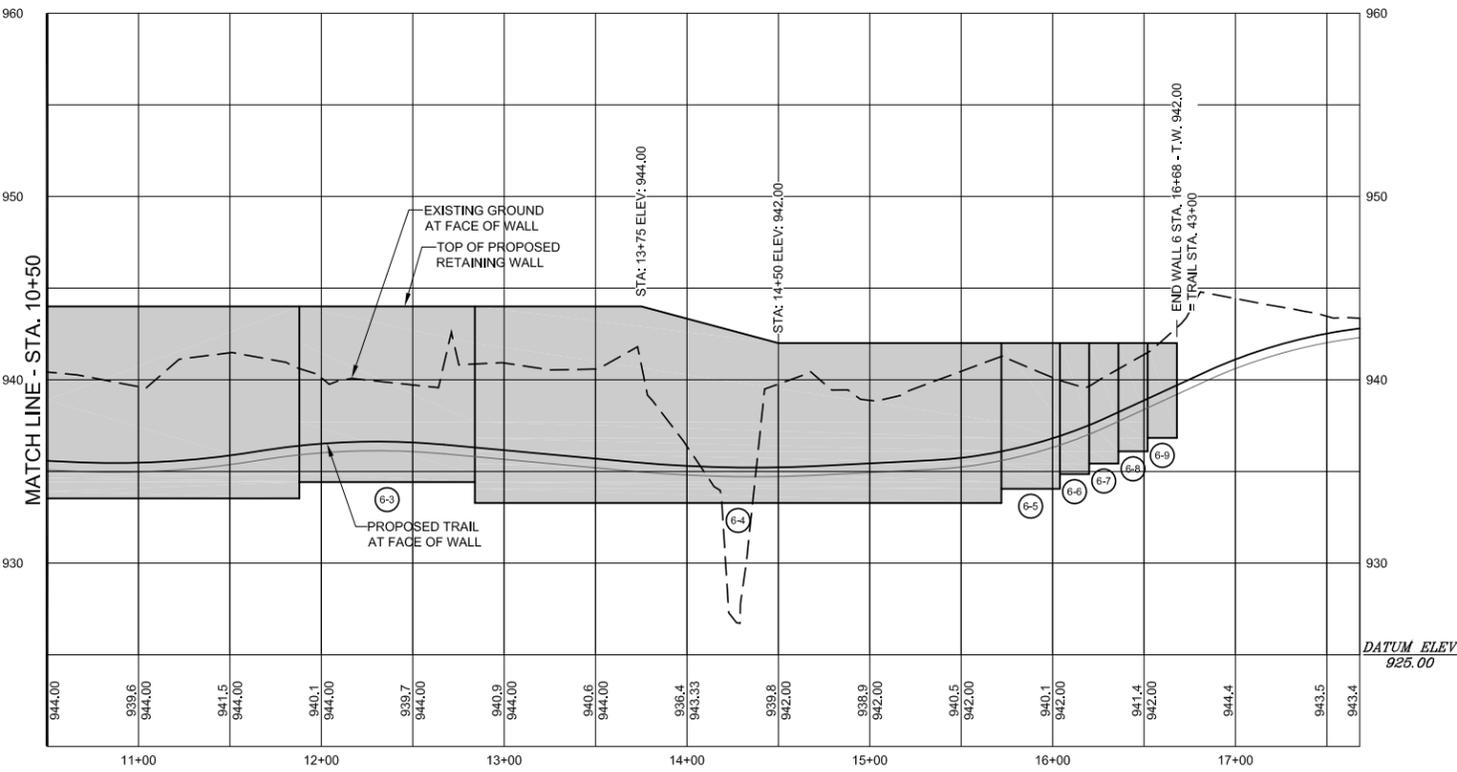
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DATE: APRIL 2017
SCALE: 1" = 50'
DWG.: 13-c-301 rw p&p.dwg

SHEET 303 OF 42

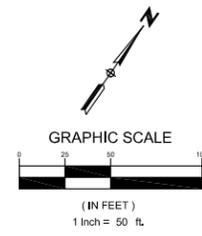
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 DATE: Apr 24, 2017 12:58pm XREFS: GBS BASE CONTOURS PROF-TRAIL



PANEL INDEX: RETAINING WALL 6 (CONCRETE WALL)

ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
6-1	9	934.45	64
6-2	11	933.53	312
6-3	10	934.42	96
6-4	11	933.28	288
6-5	8	934.06	32
6-6	8	934.85	16
6-7	7	935.43	16
6-8	6	936.10	16
6-9	6	936.83	16

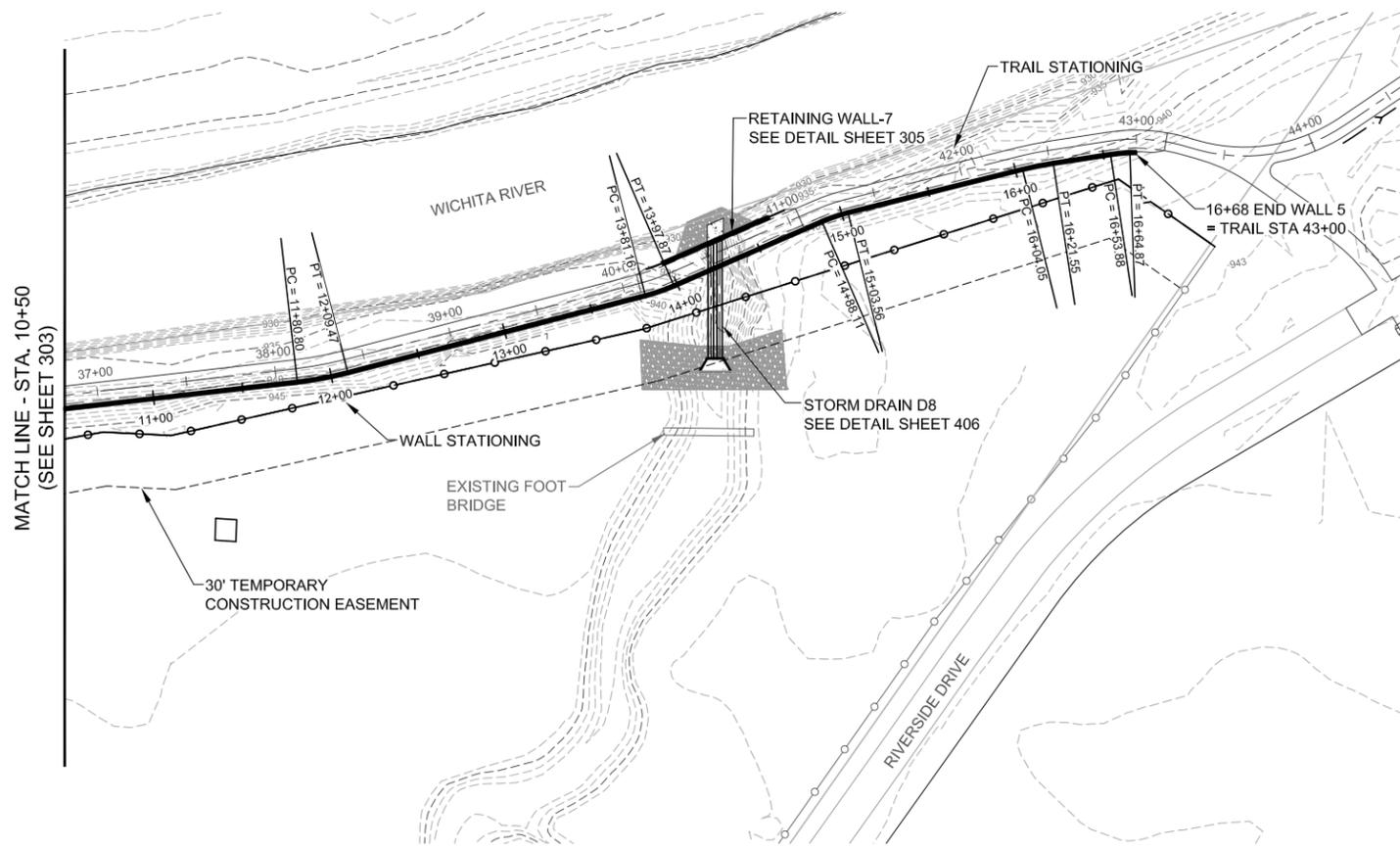
* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609



CONCRETE RETAINING WALL 6 PROFILE

SCALE: H 1" = 50'
V 1" = 5'

NOTE : WALL 6 UNDER DRAIN SHALL USE THE CONTINUOUS PIPE SYSTEM AS SHOWN ON SHEET 610. THE UNDER DRAIN PIPE FROM TRAIL STA. 34+50 - 38+50 SHALL DRAIN TO STORM DRAIN D7. THE UNDER DRAIN PIPE FROM STA. 38+50 - 43+00 SHALL DRAIN TO STORM DRAIN D8 OUTLET.



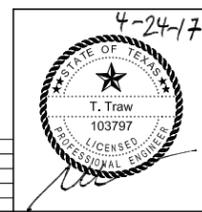
RETAINING WALL 6 PLAN

SCALE: H 1" = 50'

RETAINING WALL 6 PLAN & PROFILE

HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

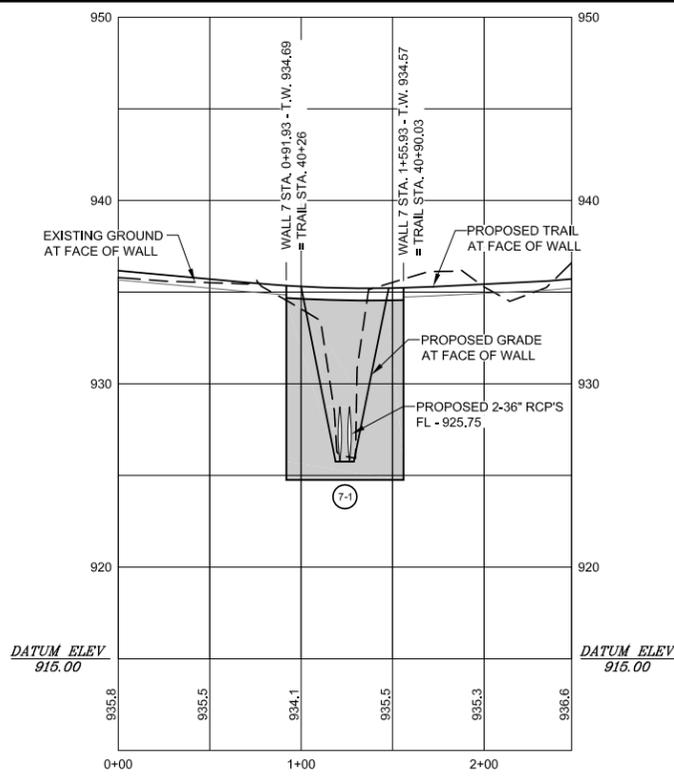
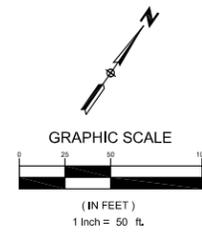


BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE WICHITA FALLS, TX 76301 V: (940) 766-0156 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	304
CHK. TT	DWG.: 13-c-301 rw p&p.dwg	16 OF 42

DWG: F:\03_Projects\2012\2012-057\Cldwg\13 C-301 RW P&P.dwg USER: ngamm DATE: Apr 24, 2017 12:58pm XREFS: GBS BASE CONTOURS PROF-TRAIL

REVISION	DATE	DESCRIPTION

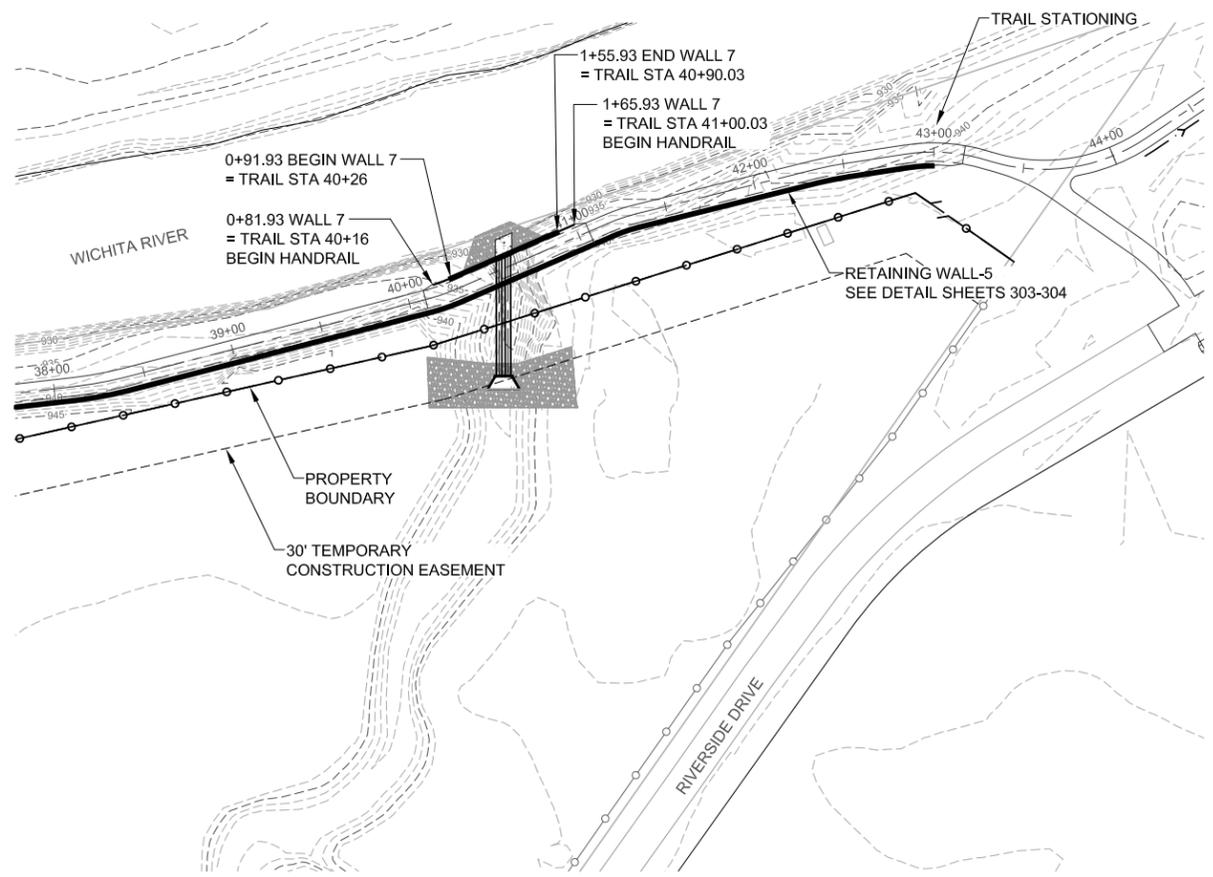


PANEL INDEX: RETAINING WALL 7 (CONCRETE WALL)			
ID	"H" (FT)*	BOTTOM OF FOOTING ELEVATION	LENGTH (FT)
7-1	10	924.75	64

* USE H TO DETERMINE STEEL REINFORCING REQUIREMENTS AS SHOWN IN TABLE ON SHEET 609

CONCRETE RETAINING WALL 7 PROFILE

SCALE: H 1" = 50'
V 1" = 5'



RETAINING WALL 7 PLAN

SCALE: H 1" = 50'

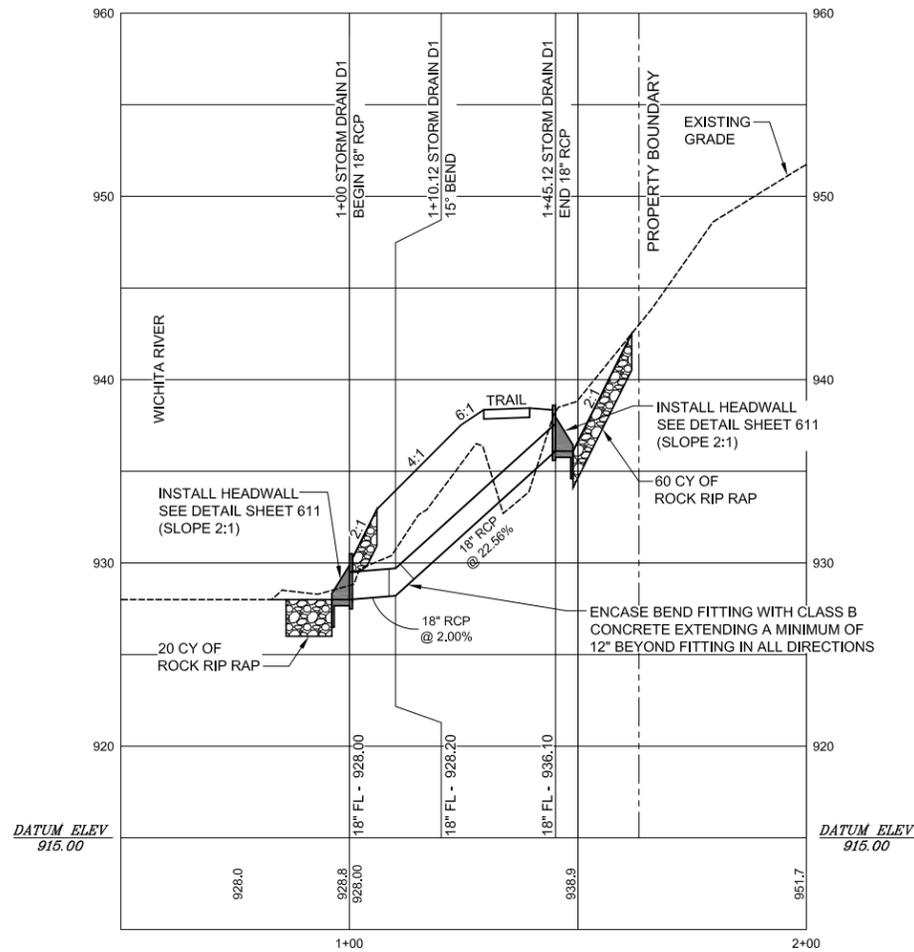
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 DATE: Apr 24, 2017 12:58pm XREFS: GBS BASE CONTOURS PROF-TRAIL

F:\03_Projects\2012\2012-057\Cidwgl13 C-301 RW P&P.dwg

REVISION	DATE	DESCRIPTION

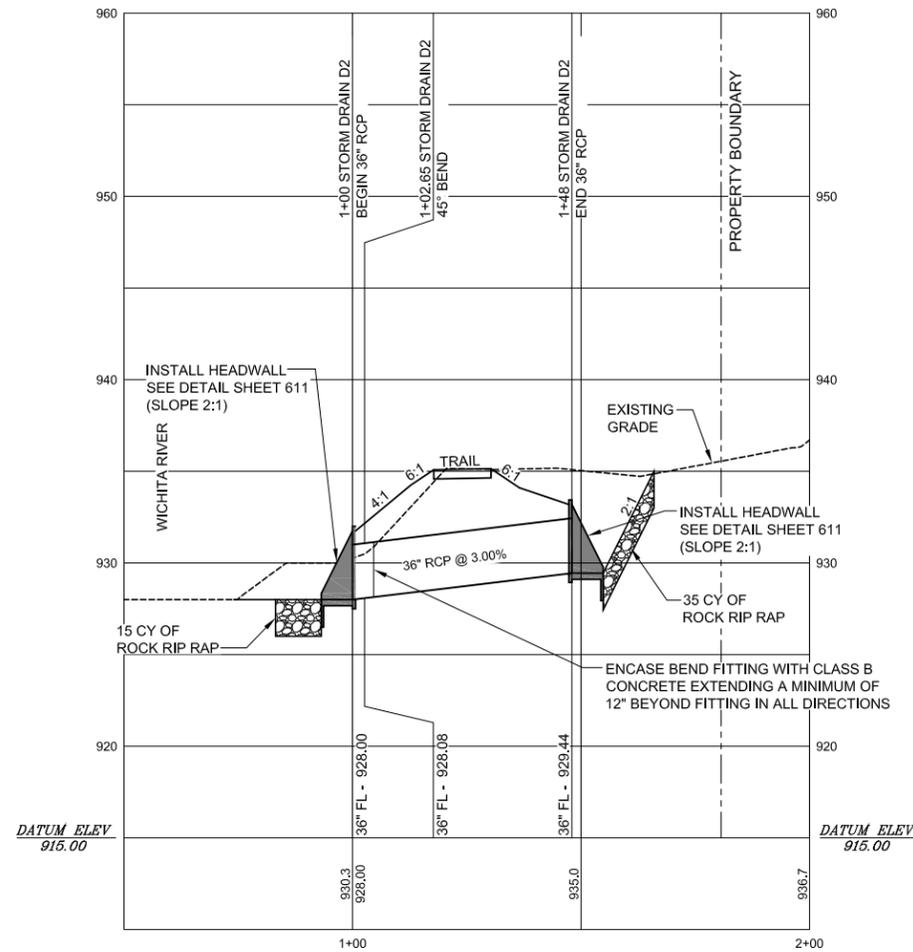


RETAINING WALL 7 PLAN & PROFILE	
HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK	
WICHITA FALLS, TEXAS	
 BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383	
DN. TT	DATE: APRIL 2017
DW. NG	SCALE: 1" = 50'
CHK. TT	DWG.: 13-c-301 rw p&p.dwg
SHEET	305
17	OF 42



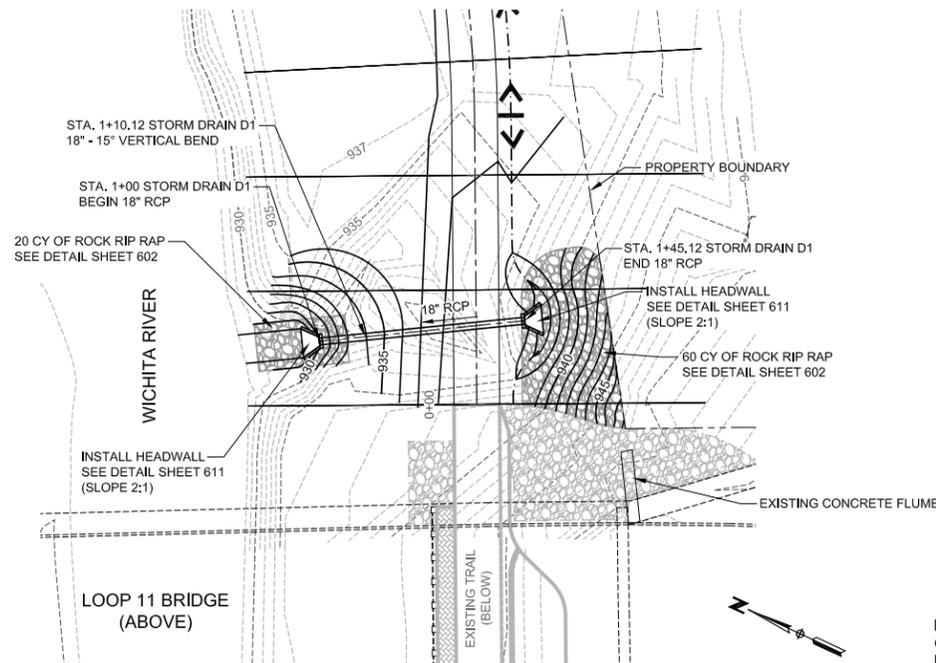
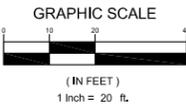
STORM DRAIN D1 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



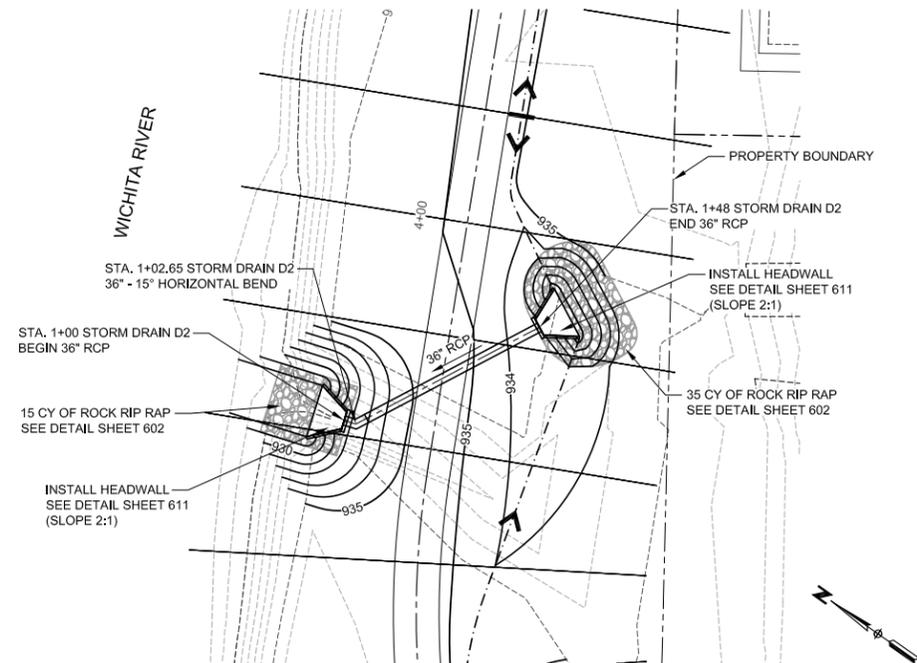
STORM DRAIN D2 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



STORM DRAIN D1 PLAN

SCALE: H 1" = 20'



STORM DRAIN D2 PLAN

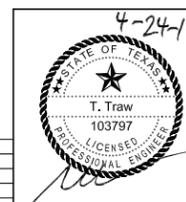
SCALE: H 1" = 20'

NOTES:
CONTRACTOR SHALL PERFORM
FINAL GRADING THAT MATCHES
PROPOSED CONTOURS, AS
SHOWN.

STORM DRAIN PLAN & PROFILE

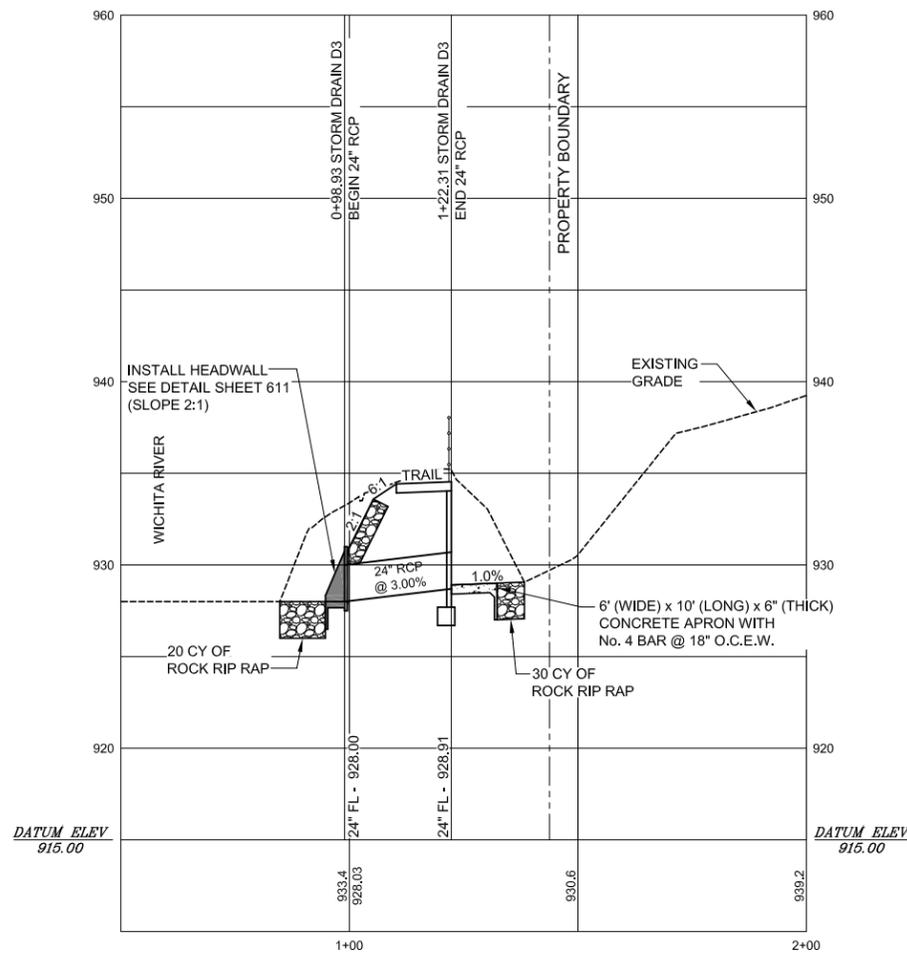
HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS



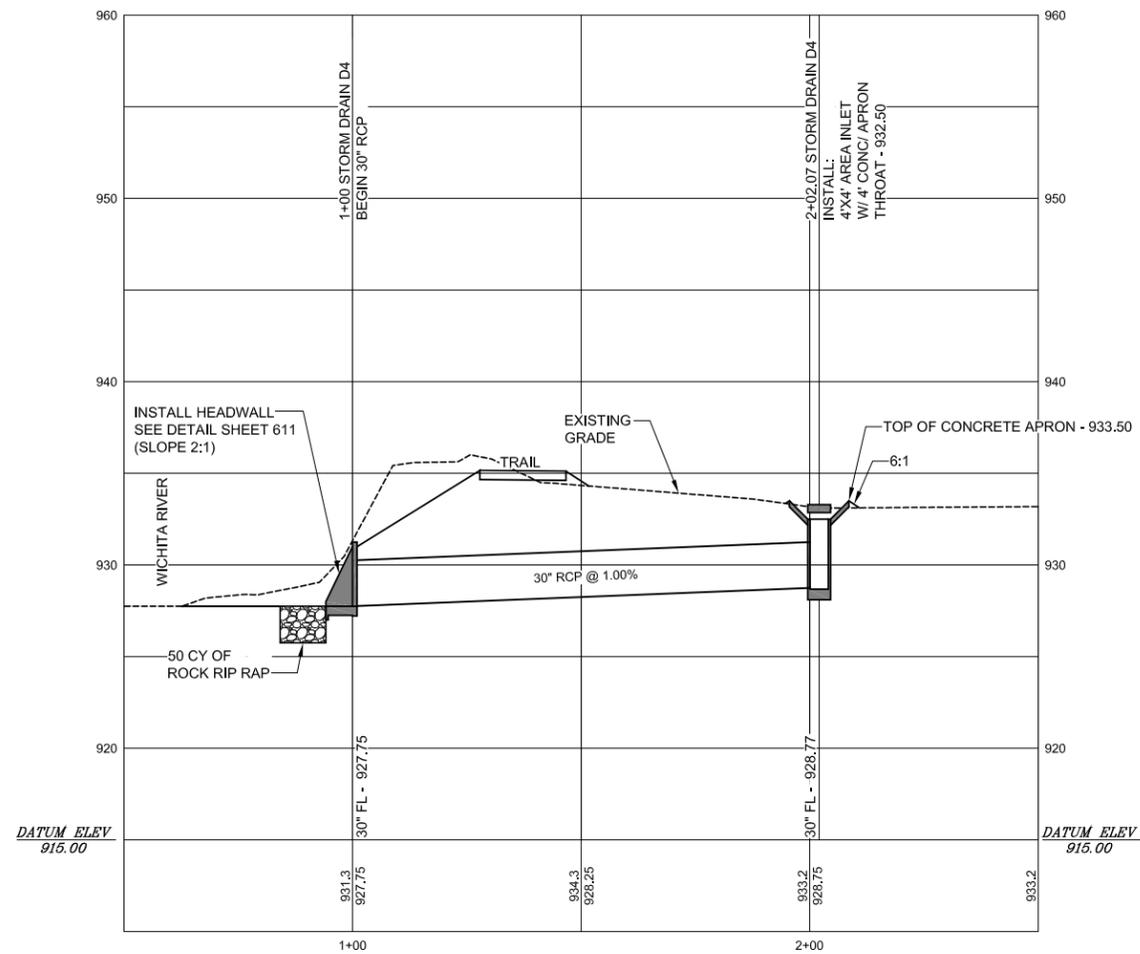
BIGGS & MATHEWS, INC.
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WICHITA FALLS, TX 76301 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 20'	401
CHK. TT	DWG.: 18 c-401 storm p&p.dwg	18 OF 42



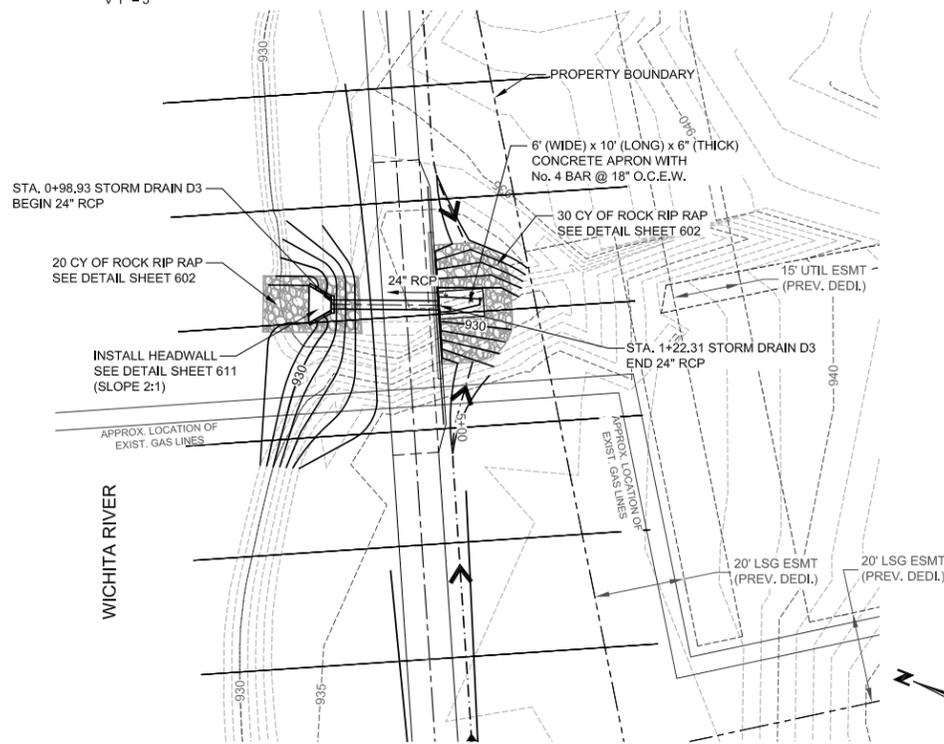
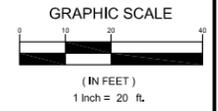
STORM DRAIN D3 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



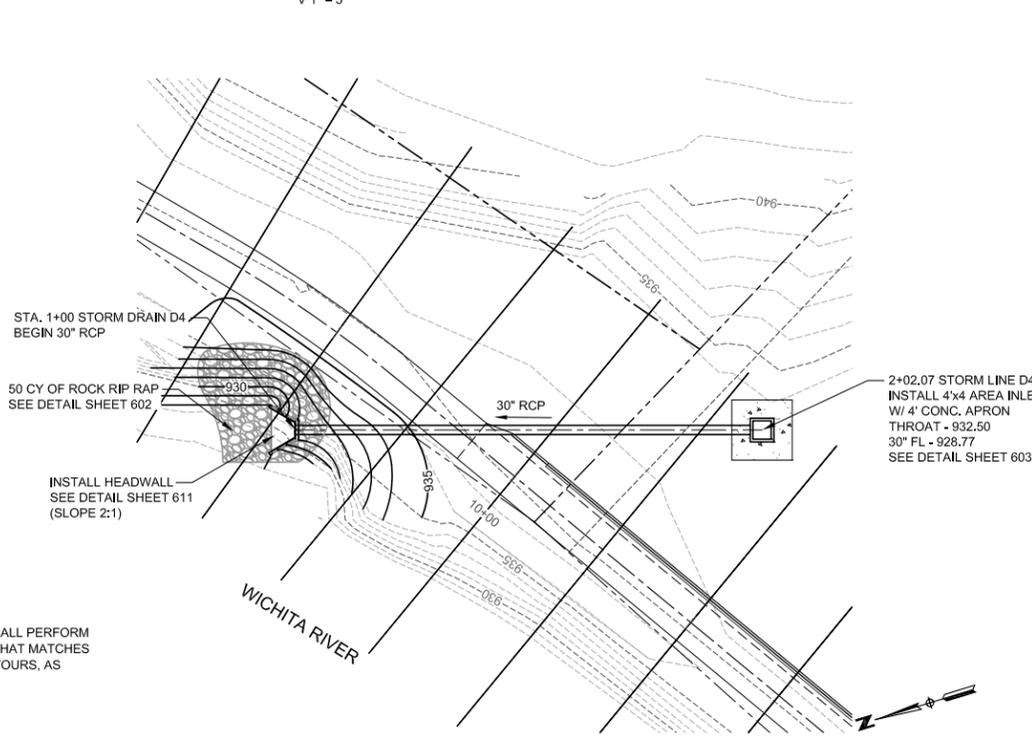
STORM DRAIN D4 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



STORM DRAIN D3 PLAN

SCALE: H 1" = 20'



STORM DRAIN D4 PLAN

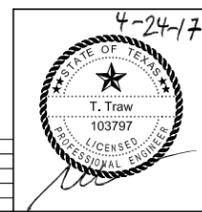
SCALE: H 1" = 20'

NOTES:
CONTRACTOR SHALL PERFORM
FINAL GRADING THAT MATCHES
PROPOSED CONTOURS, AS
SHOWN.

STORM DRAIN PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

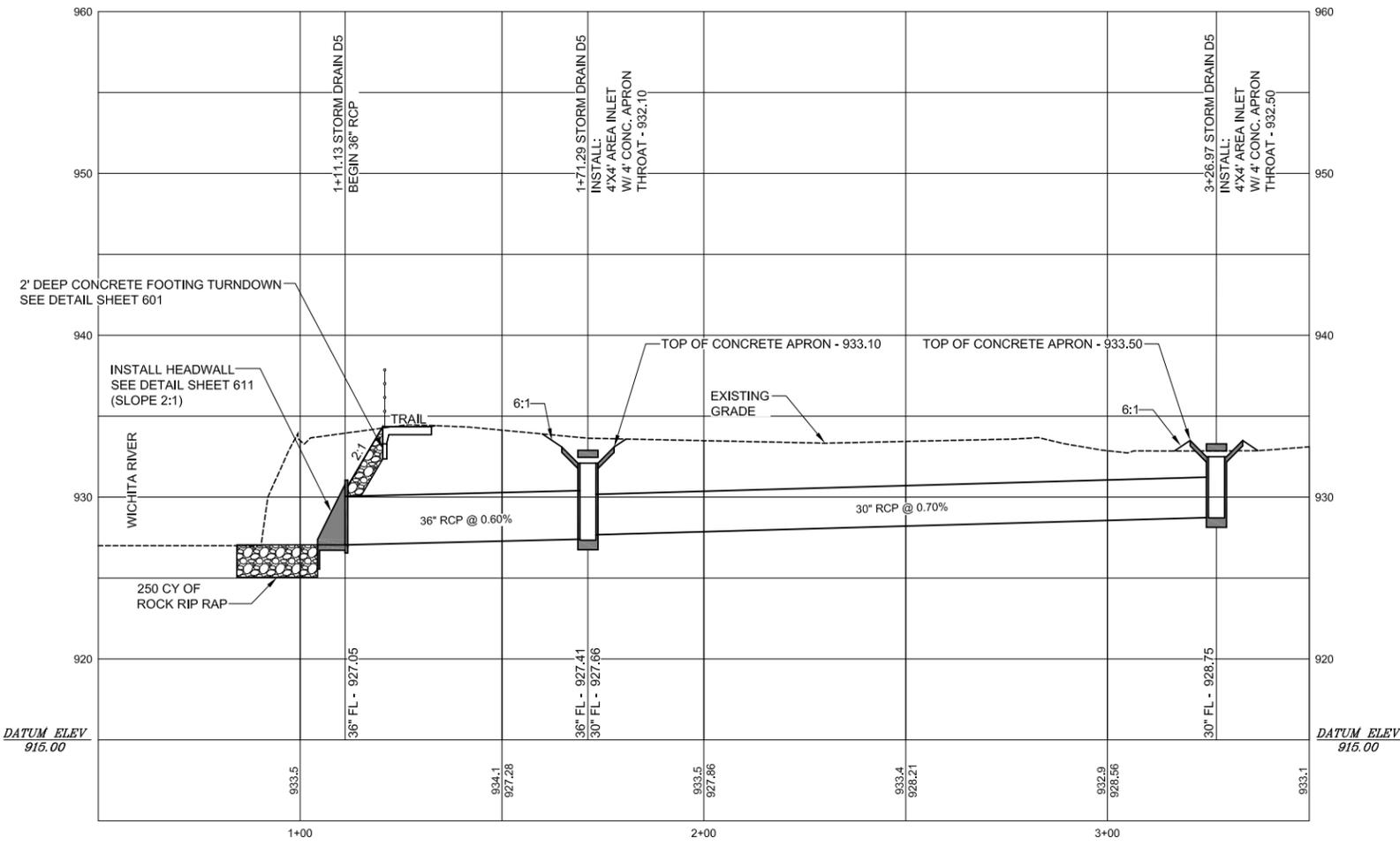
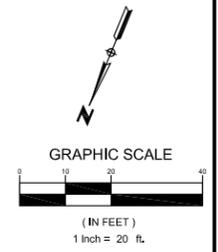
WICHITA FALLS, TEXAS



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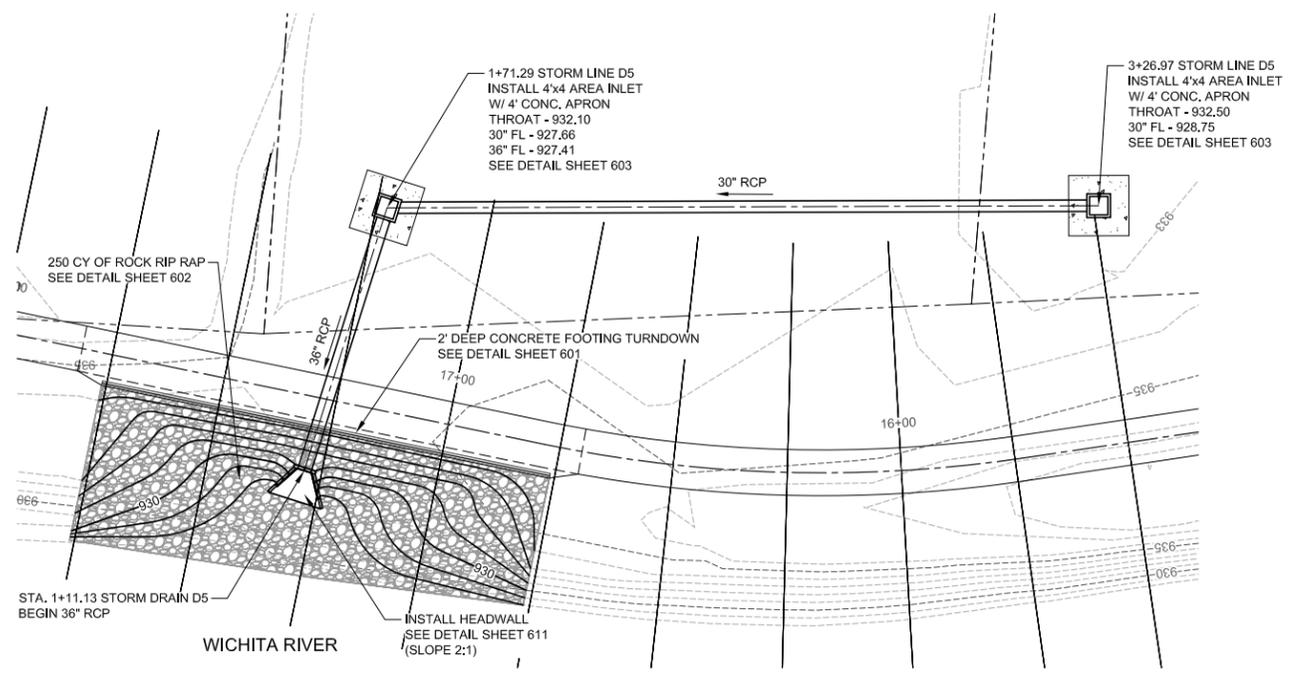
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 20'	402
CHK. TT	DWG.: 18 c-401 storm p&p.dwg	19 OF 42

DWG: F:\03_Projects\2012\2012-057\cldwg\18 c-401 STORM P&P.dwg USER: ngamm
 DATE: Apr 24, 2017 12:59pm XREFS: GBS BASE CONTOURS SURFACE-PROPOSED PROF-OG WIER PROF-STORM



STORM DRAIN D5 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



STORM DRAIN D5 PLAN

SCALE: H 1" = 20'

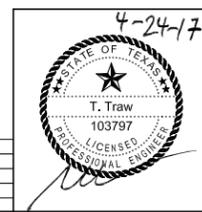
NOTES:
CONTRACTOR SHALL PERFORM
FINAL GRADING THAT MATCHES
PROPOSED CONTOURS, AS
SHOWN.

STORM DRAIN PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

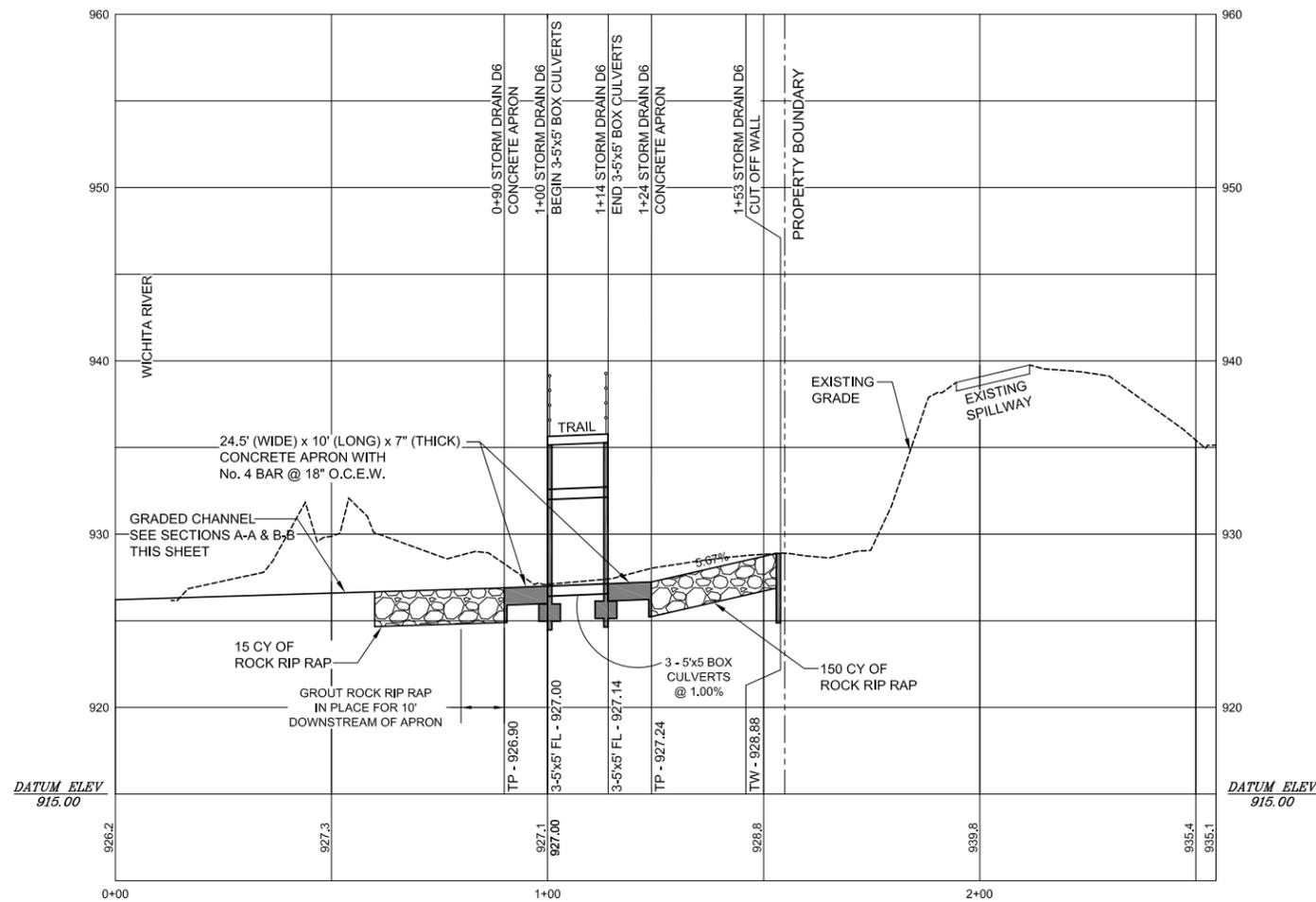
BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383



DN.	TT	DATE	DESCRIPTION

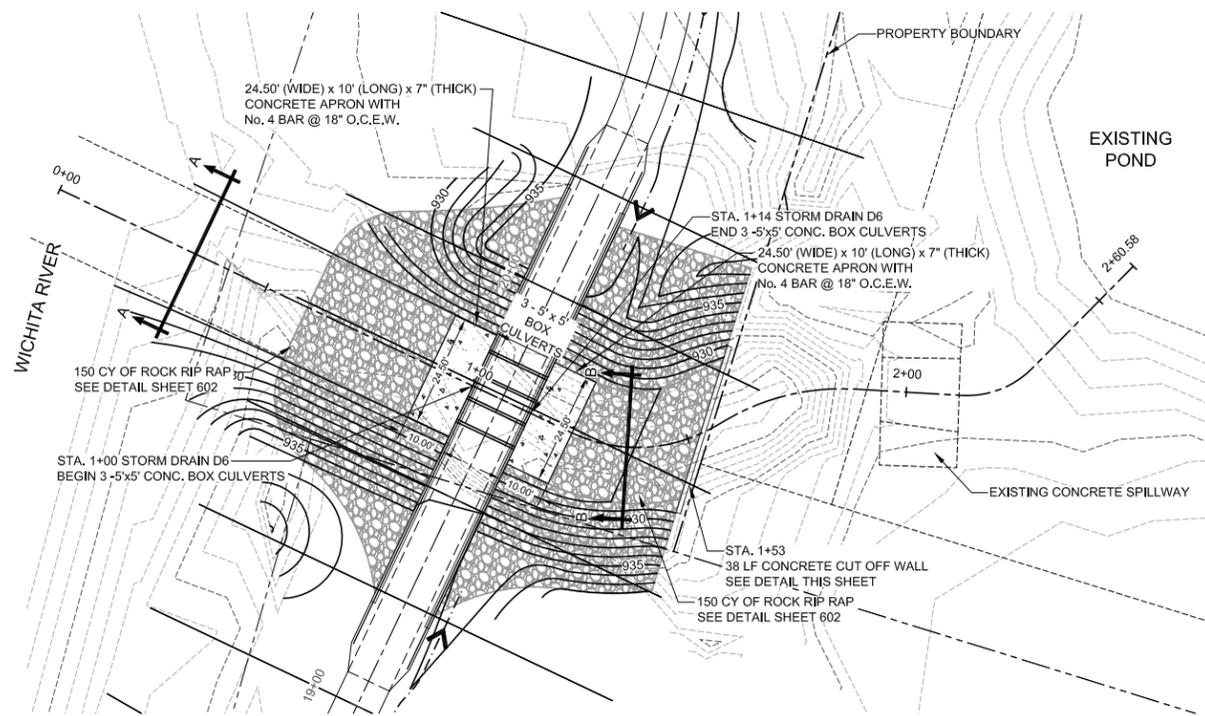
DN.	TT	DATE	SHEET
DW.	NG	SCALE: 1" = 20'	403
CHK.	TT	DWG.: 18 c-401 storm p&p.dwg	20 OF 42

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 DATE: Apr 24, 2017 12:59pm XREFS: GBS BASE CONTOURS SURFACE-PROPOSED PROF-OG WIER PROF-STORM



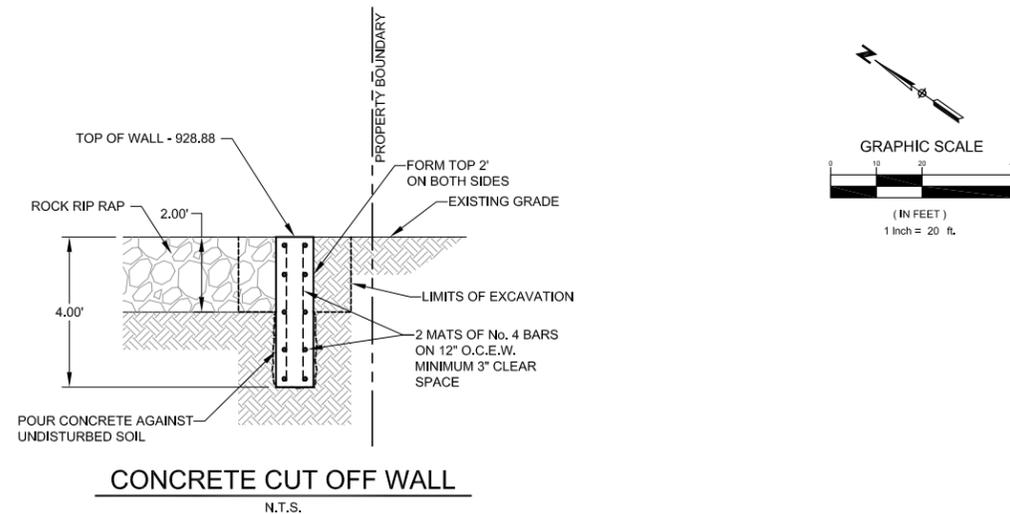
STORM DRAIN D6 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



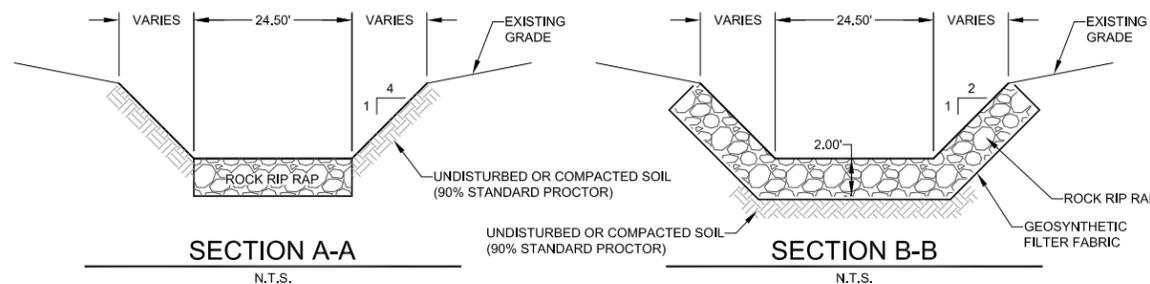
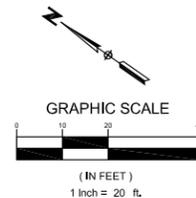
STORM DRAIN D6 PLAN

SCALE: H 1" = 20'



CONCRETE CUT OFF WALL

N.T.S.

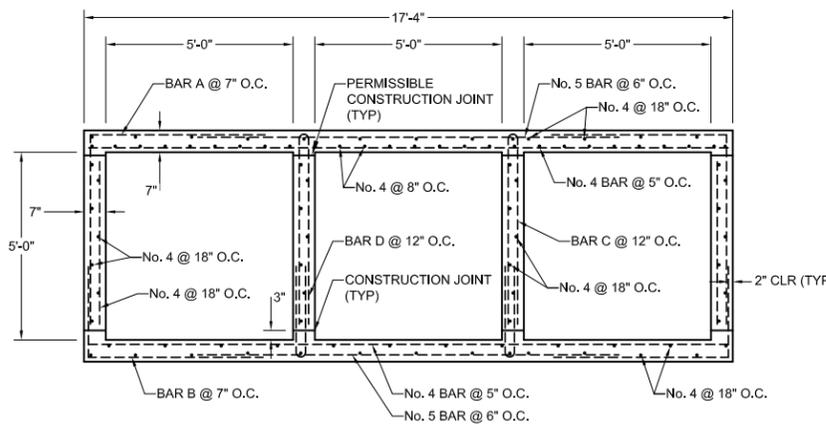


SECTION A-A

N.T.S.

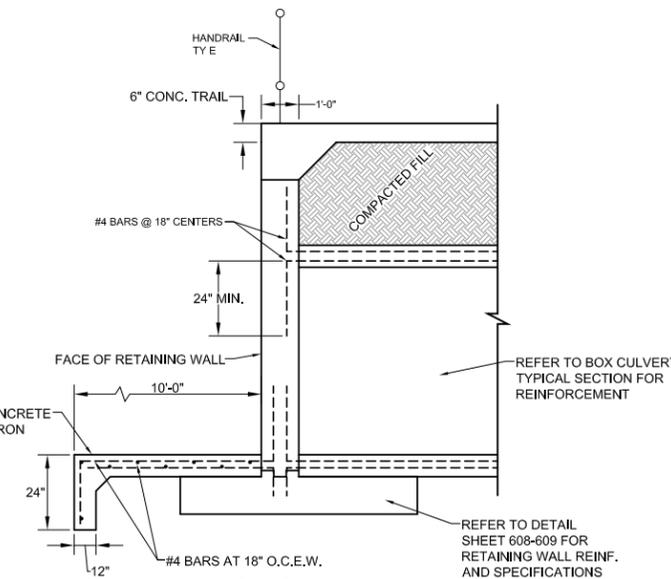
SECTION B-B

N.T.S.



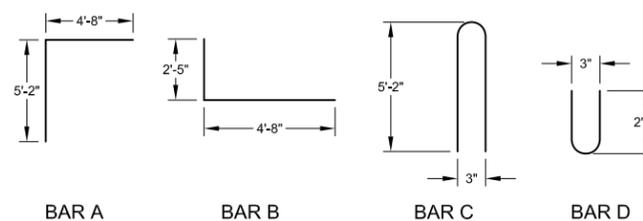
BOX CULVERT - TYPICAL SECTION

N.T.S.



BOX CULVERT CONNECTION TO RETAINING WALL

N.T.S.



BAR A

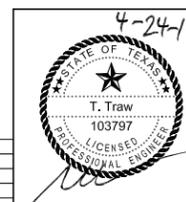
BAR B

BAR C

BAR D

NOTES:
CONTRACTOR SHALL PERFORM FINAL GRADING THAT MATCHES PROPOSED CONTOURS, AS SHOWN.

REVISION	DATE	DESCRIPTION



STORM DRAIN PLAN & PROFILE

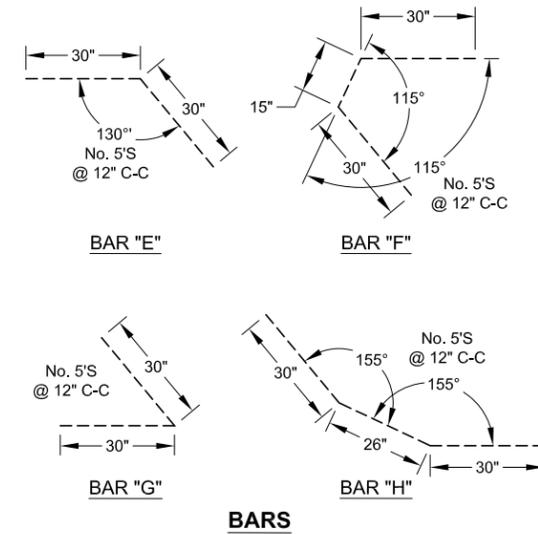
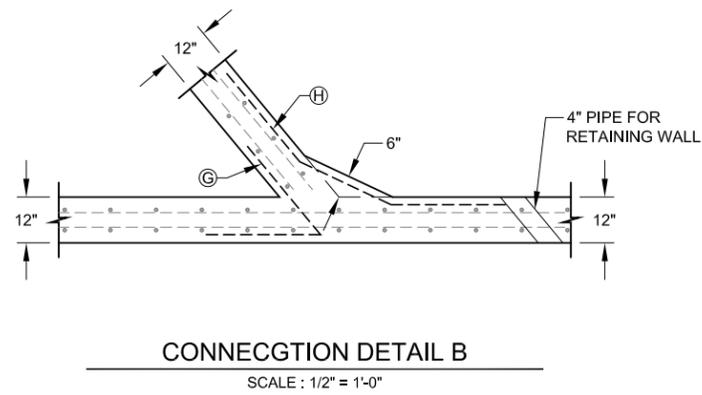
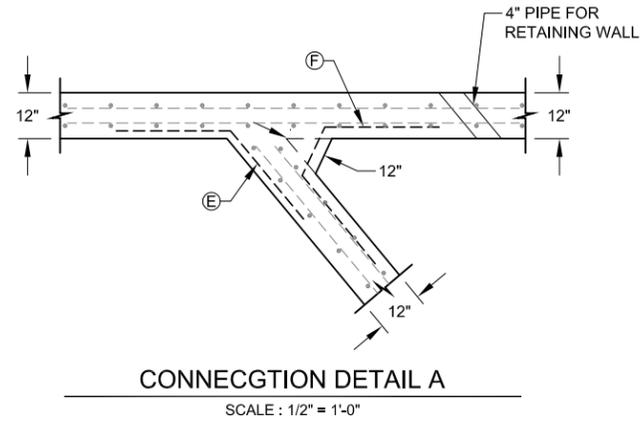
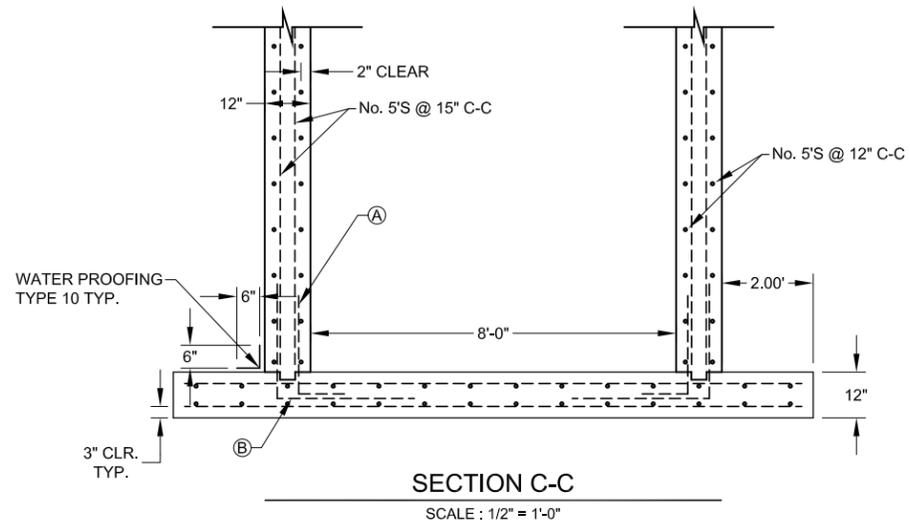
HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 20'	404
CHK. TT	DWG.: 18-c-401 storm p&p.dwg	21 OF 42

DWG: F:\03_Projects\2012\2012-057\cldwg\18 C-401 STORM P&P.dwg USER: ngamm
 DATE: Apr 24, 2017 12:59pm XREFS: GBS BASE CONTOURS SURFACE-PROPOSED PROF-OG WIER PROF-STORM

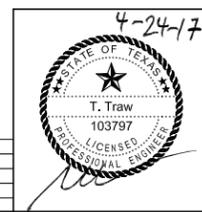


STORM DRAIN PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

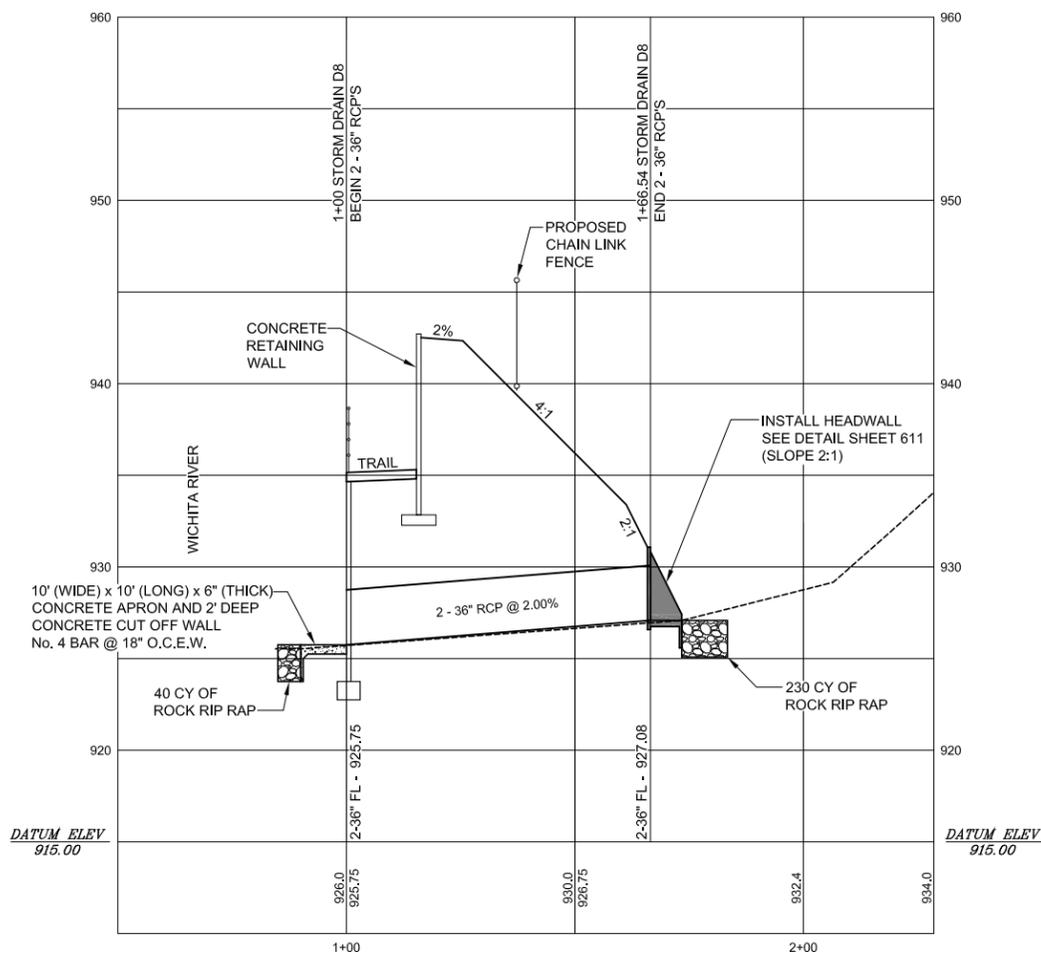
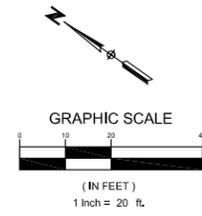
BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383



REVISION	DATE	DESCRIPTION

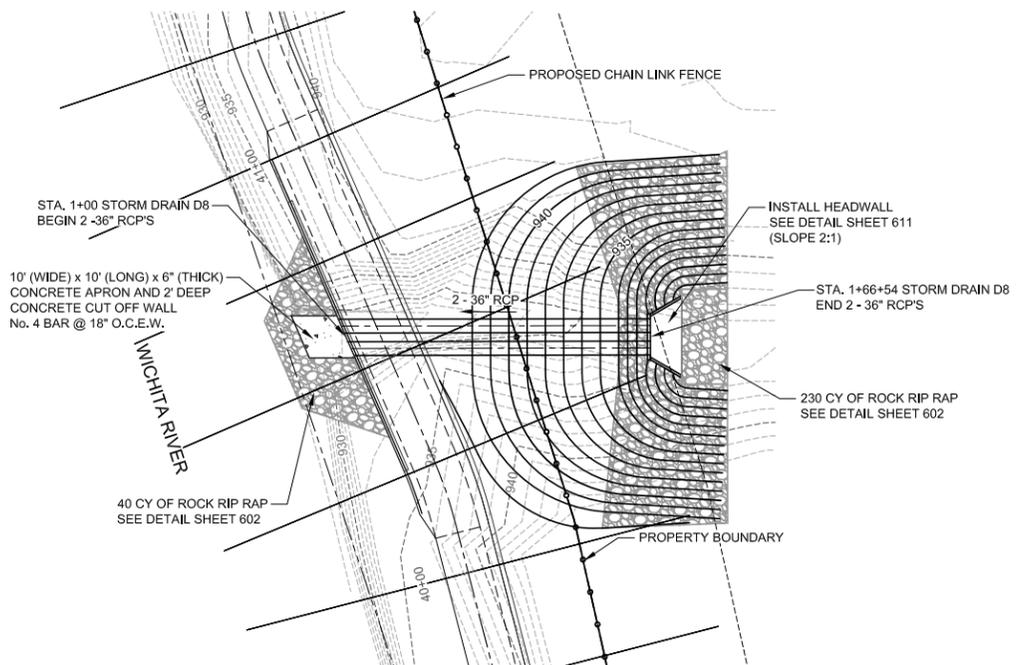
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: AS SHOWN	406
CHK. TT	DWG.: 18 c-401 storm p&p.dwg	23 OF 42

f:\03_projects\2012\2012-057\cldwg\18 c-401 storm p&p.dwg



STORM DRAIN D8 PROFILE

SCALE: H 1" = 20'
V 1" = 5'



STORM DRAIN D8 PLAN

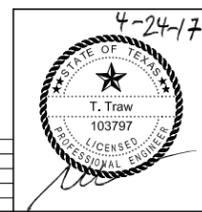
SCALE: H 1" = 20'

NOTES:
CONTRACTOR SHALL PERFORM FINAL GRADING THAT MATCHES PROPOSED CONTOURS, AS SHOWN.

STORM DRAIN PLAN & PROFILE

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

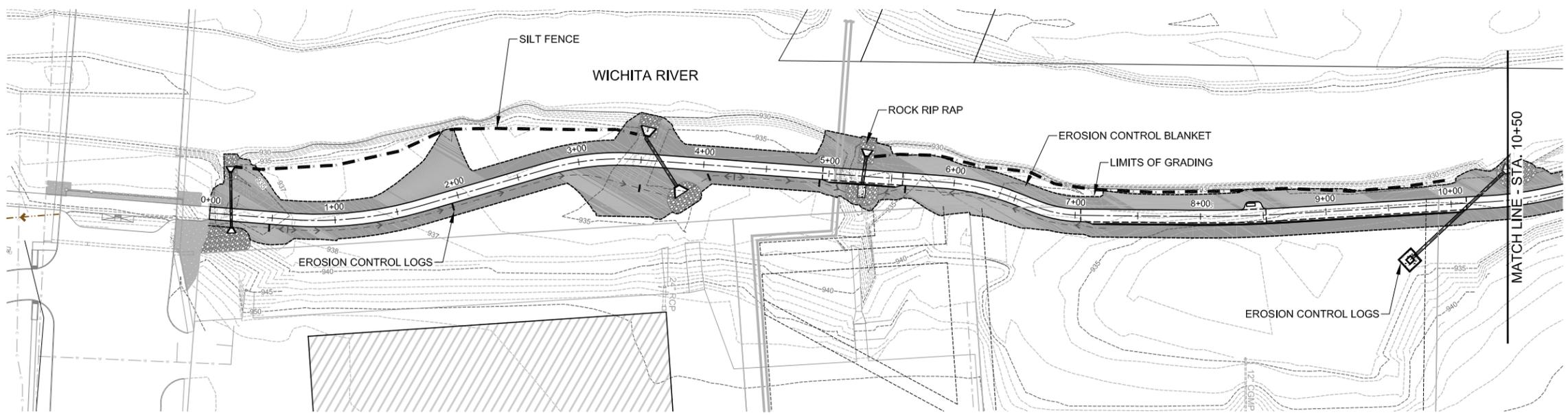
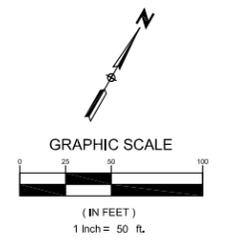


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TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 20'	406
CHK. TT	DWG.: 18 c-401 storm p&p.dwg	24 OF 42

REVISION	DATE	DESCRIPTION

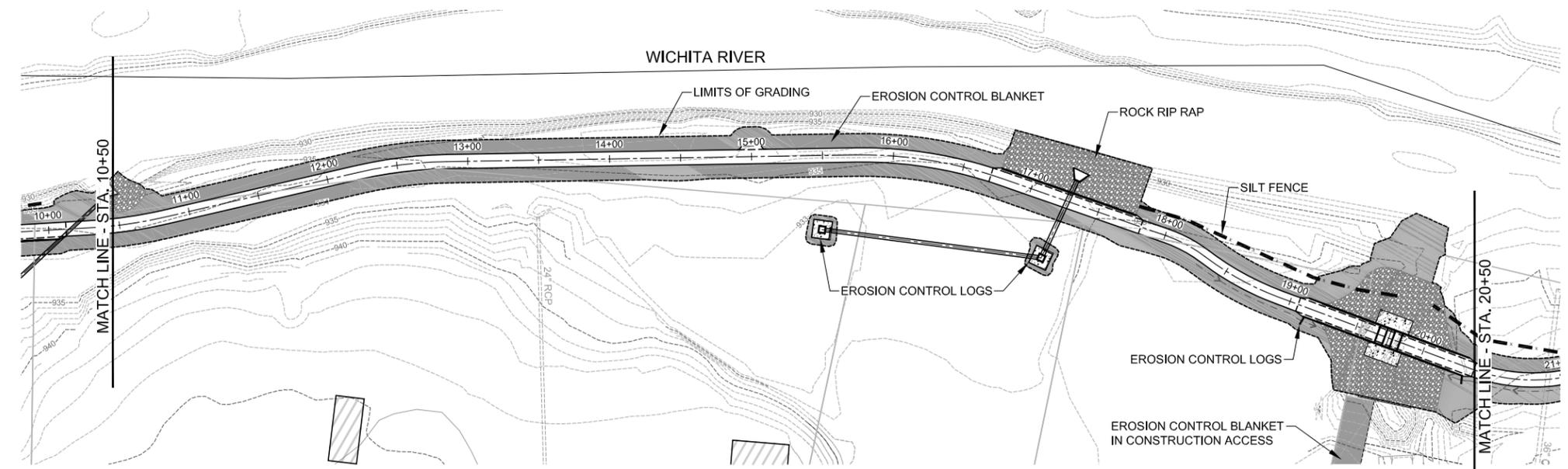
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 DATE: Apr 24, 2017 1:00pm XREFS: GBS BASE CONTOURS SURFACE-PROPOSED PROF-OG WIER PROF-STORM



TRAIL PLAN (0+00 - 10+50)

SCALE: H 1" = 50'

- LEGEND**
- SILT FENCE
 - - - LIMITS OF GRADING
 - ▬ EROSION CONTROL LOGS
 - ▨ STABILIZED CONSTRUCTION ENTRANCE
 - ▩ ROCK BERM CHECK DAM
 - ▧ EROSION CONTROL BLANKET



TRAIL PLAN (10+50 - 20+50)

SCALE: H 1" = 50'

EROSION CONTROL PLAN
HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK
WICHITA FALLS, TEXAS



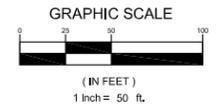
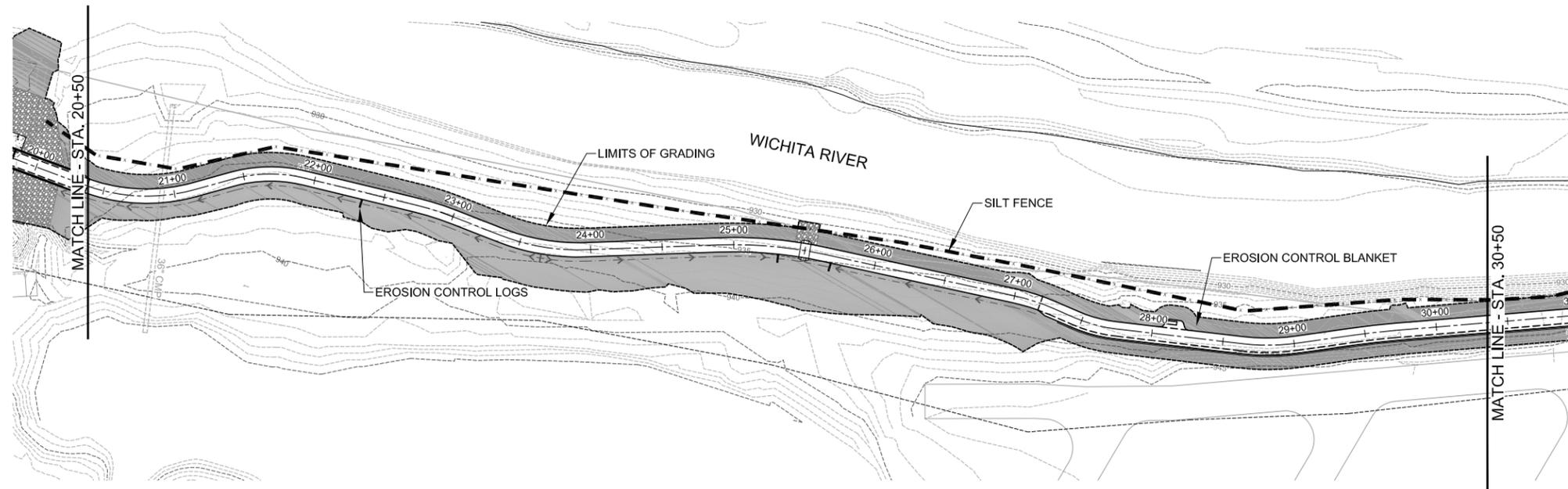
BIGGS & MATHEWS, INC.
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2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	501
CHK. TT	DWG.: 25 c-501 erosion control.dwg	25 OF 42

DWG: F:\03_Projects\2012\2012-057\c\dwg\25 c-501 erosion control.dwg USER: ngann
 DATE: Apr 24, 2017 1:00pm XREFS: GBS BASE CONTOURS

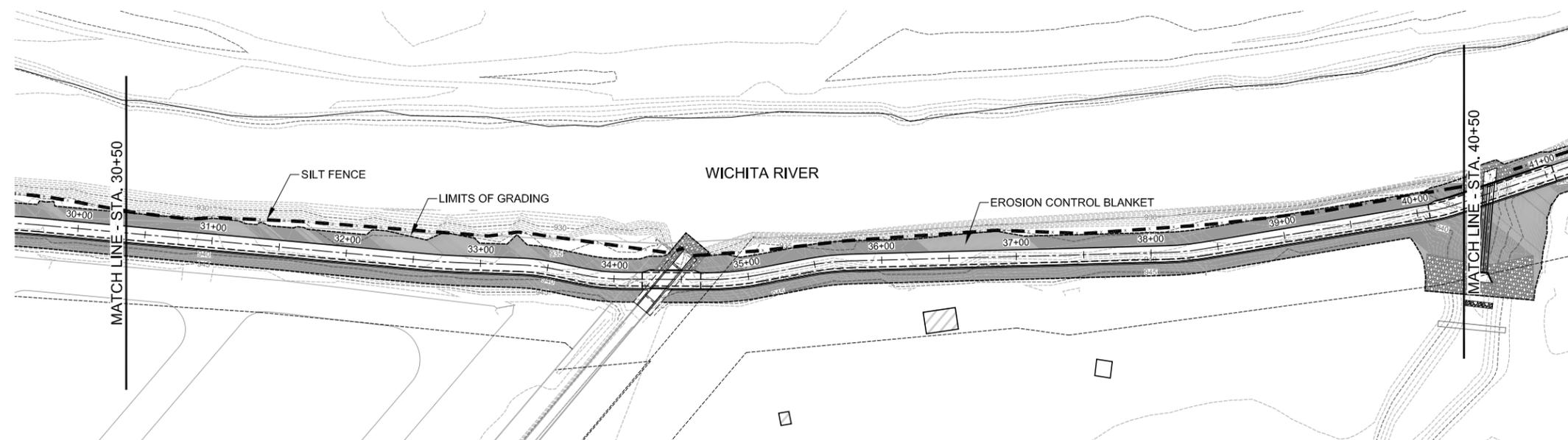
F:\03_projects\2012\2012-057\c\dwg\25 c-501 erosion control.dwg

REVISION	DATE	DESCRIPTION



TRAIL PLAN (20+50 - 30+50)

SCALE: H 1" = 50'



LEGEND

- SILTS FENCE
- LIMITS OF GRADING
- EROSION CONTROL LOGS
- STABILIZED CONSTRUCTION ENTRANCE
- ROCK BERM CHECK DAM
- EROSION CONTROL BLANKET

TRAIL PLAN (30+50 - 40+50)

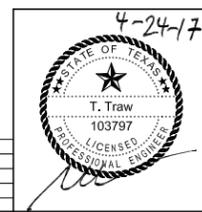
SCALE: H 1" = 50'



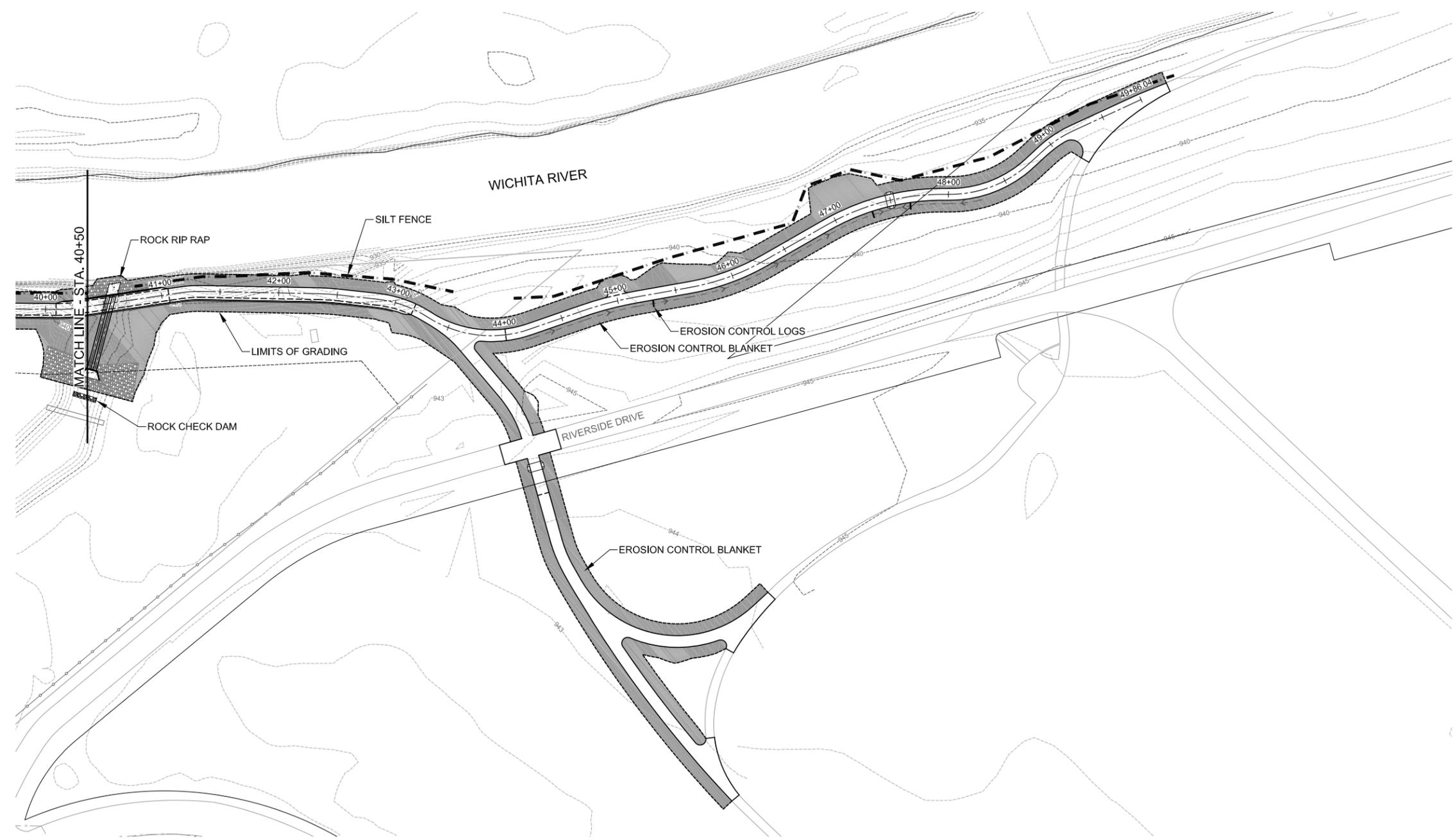
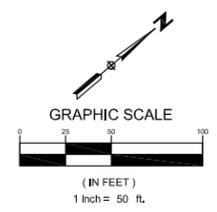
DWG: F:\03_Projects\2012\2012-057\cldwg\25 C-501 EROSION CONTROL.dwg USER: ngann
 DATE: Apr 24, 2017 1:00pm XREFS: GBS BASE CONTOURS

F:\03_projects\2012\2012-057\cldwg\25 c-501 erosion control.dwg

REVISION	DATE	DESCRIPTION



EROSION CONTROL PLAN HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK WICHITA FALLS, TEXAS		
BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383		
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	502
CHK. TT	DWG.: 25 c-501 erosion control.dwg	26 OF 42



LEGEND

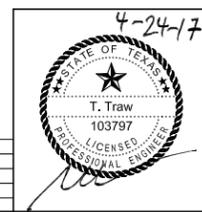
	SILT FENCE
	LIMITS OF GRADING
	EROSION CONTROL LOGS
	STABILIZED CONSTRUCTION ENTRANCE
	ROCK BERM CHECK DAM
	EROSION CONTROL BLANKET

TRAIL PLAN (40+50 - END)

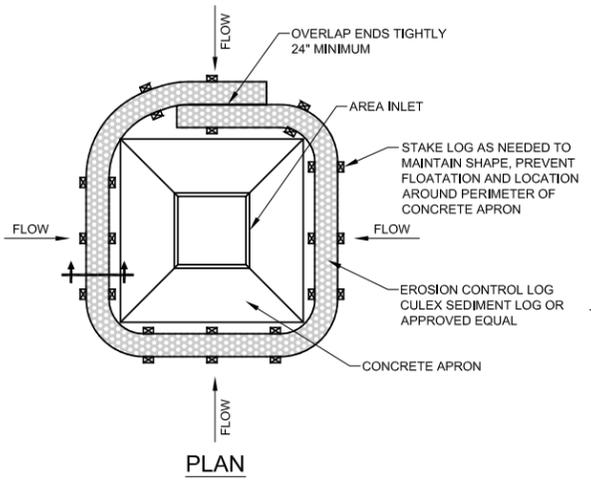
SCALE: H 1" = 50'

DWG: F:\03_Projects\2012\2012-057\c\dwg\25 c-501 EROSION CONTROL.dwg USER: ngann
 DATE: Apr 24, 2017 1:00pm XREFS: GBS BASE CONTOURS

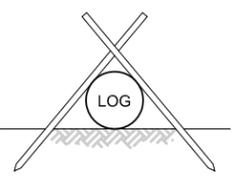
REVISION	DATE	DESCRIPTION



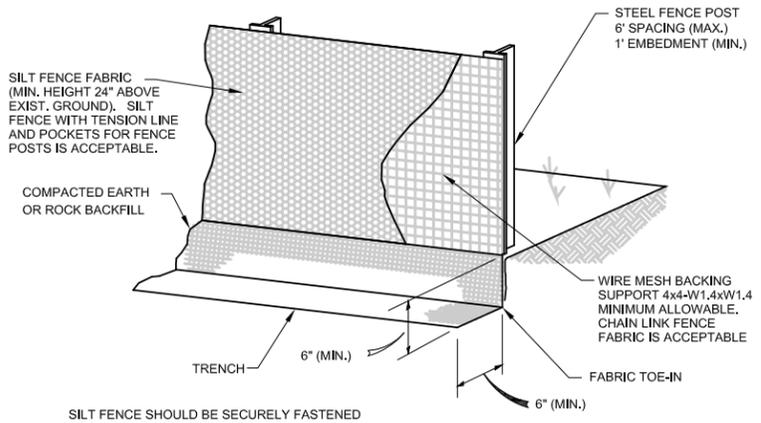
EROSION CONTROL PLAN	
HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK	
WICHITA FALLS, TEXAS	
BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383	
DN. TT	DATE: APRIL 2017
DW. NG	SCALE: 1" = 50'
CHK. TT	DWG.: 25 c-501 erosion control.dwg
SHEET 503 27 OF 42	



PLAN
EROSION CONTROL LOGS AT INLET
DETAIL 'A'
 N.T.S.



SECTION



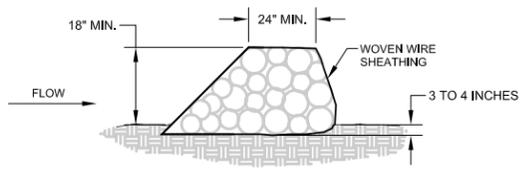
SILT FENCE
 NCTCOG 02270.B
 STORM WATER QUALITY
 BEST MANAGEMENT PRACTICES
 FOR CONSTRUCTION ACTIVITIES
DETAIL 'B'
 N.T.S.

**SEEDING, FERTILIZATION, AND EROSION CONTROL
 BLANKET GENERAL NOTES:**

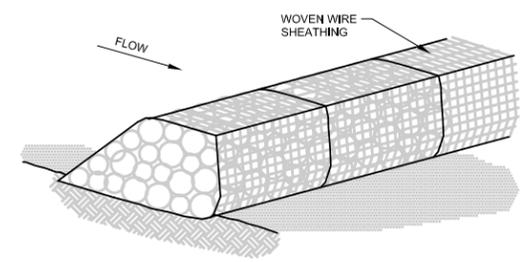
1. EROSION CONTROL BLANKET SHALL BE RATED FOR 3H:1V SLOPES WITH AN EXPECTED LIFE TO EXCEED 18 MONTHS.
2. CONTRACTOR SHALL INSTALL EROSION CONTROL BLANKET ACCORDING TO MANUFACTURERS SPECIFICATIONS.
3. CONTRACTOR SHALL SUBMIT EROSION CONTROL BLANKET MANUFACTURE AND SPECIFICATIONS FOR APPROVAL BY ENGINEER.
4. PRIOR TO PLACING EROSION CONTROL MAT, A HYDROMULCH SEED MIXTURE SHALL BE APPLIED AT A RATE OF 15 LBS/ACRE WITH THE FOLLOWING SPECIES DISTRIBUTION BY WEIGHT; BUFFALOGRASS 40%, GREEN SPRANGETOP 13%, BLUE GRAMMA 10%, SIDEOATS GRAMMA 10%, HARRY VETCH 10%, LITTLE BLUESTEM 7%, INDIAN GRASS 5%, AND SAND LOVEGRASS 5%. THE SEED MIXTURE SHALL BE APPLIED BETWEEN OCTOBER 1ST AND JUNE 10TH.
5. FERTILIZATION SHALL BE EVENLY APPLIED PRIOR TO OR AT THE SAME TIME AS SEEDING AT A RATE OF 10 lbs. FERTILIZER PER 1,000 sq. ft. AS SPECIFIED IN 202.4 OF THE PUBLIC WORK CONSTRUCTION STANDARDS, NORTH CENTRAL TEXAS, OCTOBER 2004. THE FERTILIZER ANALYSIS SHALL BE 1-1-1 (N-K-P) RATIO BY WEIGHT WITH 10-15 PERCENT SULPHATE OR BASED UPON CERTIFIED SOIL TESTING APPROVED BY THE ENGINEER.

SILT FENCE GENERAL NOTES:

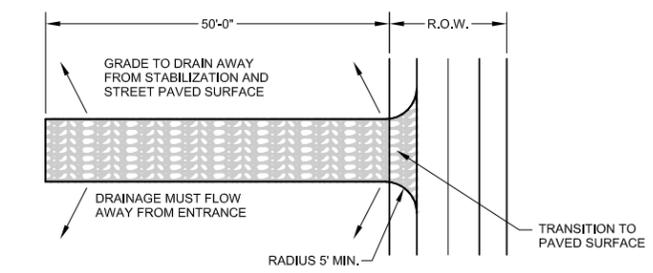
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
6. INSPECTION SHALL BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
7. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



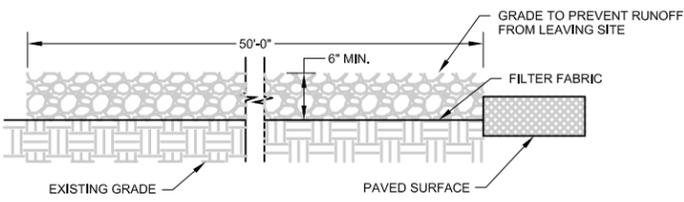
CROSS SECTION



ISOMETRIC PLAN VIEW
ROCK CHECK DAM
DETAIL 'C'
 N.T.S.



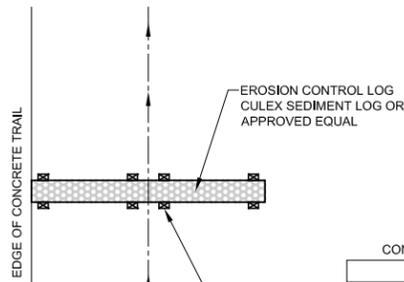
PLAN



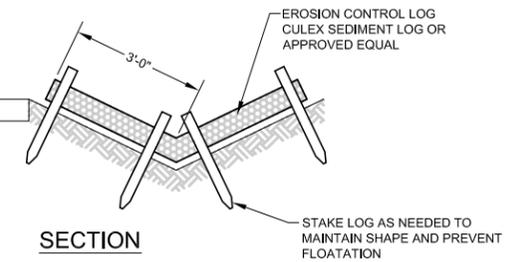
PROFILE

**STABILIZED CONSTRUCTION
 ENTRANCE / EXIT**
 NCTCOG 02270.G
 STORM WATER QUALITY
 BEST MANAGEMENT PRACTICES
 FOR CONSTRUCTION ACTIVITIES
DETAIL 'D'
 N.T.S.

The Stabilized Construction Entrance / Exit Is To Be Used As A Vehicle Wash Down Area For Debris And Soil Removal Before Exiting The Site Onto The Existing Roadway. Location For Installation Should Be Identified On The Project's Erosion Control Plan. An Alternate Location Must Be Approved By Owner Or Engineer Prior To Installation. Stabilized Construction Entrance / Exit Shall Be Top Dressed With Additional Stone As Necessary.



PLAN



SECTION

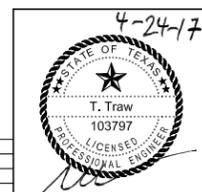
EROSION CONTROL LOGS AT SWALE
DETAIL 'E'
 N.T.S.

- NOTES:
 1. EROSION CONTROL LOGS SHALL BE PLACED EVERY 200' ALONG PROPOSED SWALES OR AS NECESSARY AT THE DIRECTION OF THE ENGINEER.

EROSION CONTROL PLAN

**HIKE & BIKE TRAIL
 FROM LOOP 11 TO LUCY PARK**

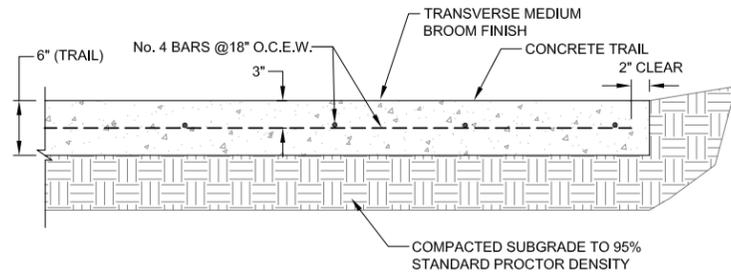
WICHITA FALLS, TEXAS



BIGGS & MATHEWS, INC.
 CONSULTING ENGINEERS / SURVEYORS
 TEXAS REGISTERED ENGINEERING FIRM F-834
 2500 BROOK AVENUE V: (940) 766-0156
 WICHITA FALLS, TX 76301 F: (940) 766-3383

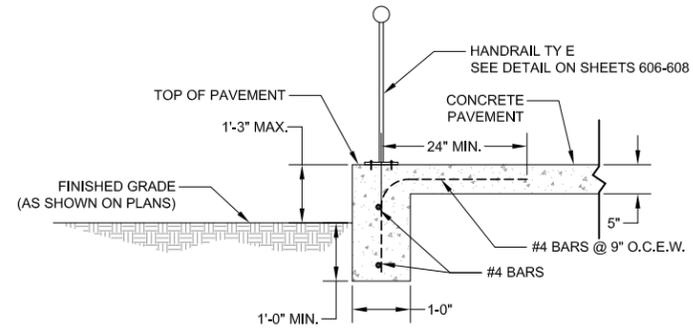
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	504
CHK. TT	DWG.: 25-c-501 erosion control.dwg	28 OF 42

DWG: F:\03_projects\2012\057\c\dwg\25 c-501 EROSION CONTROL.dwg USER: ngann
 DATE: Apr 24, 2017 1:00pm XREFS: GBS BASE CONTOURS



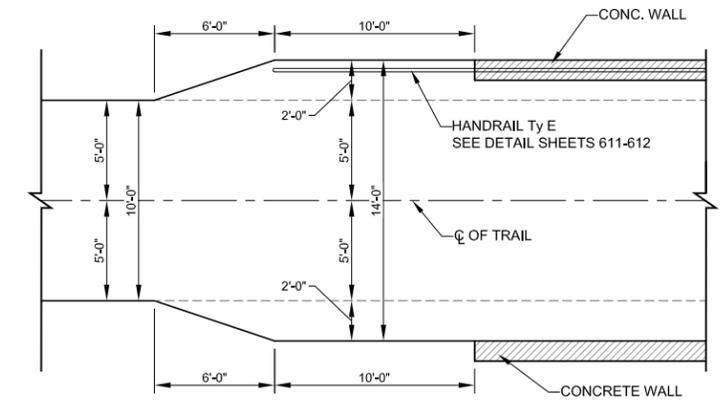
TYPICAL PAVING SECTION (6 INCH)

NOT TO SCALE



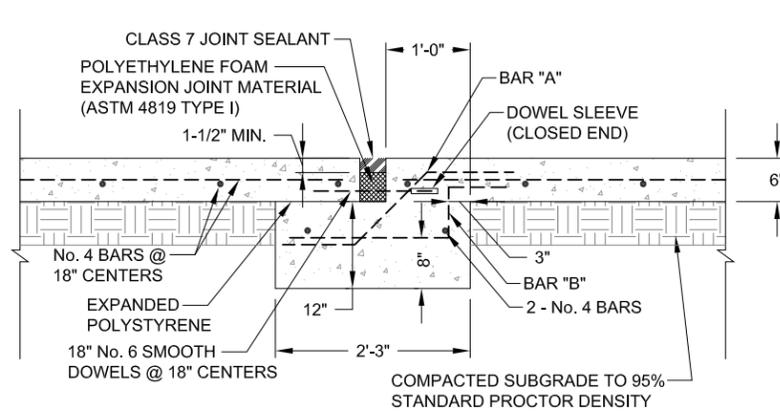
CONCRETE FOOTING TURNDOWN

NOT TO SCALE



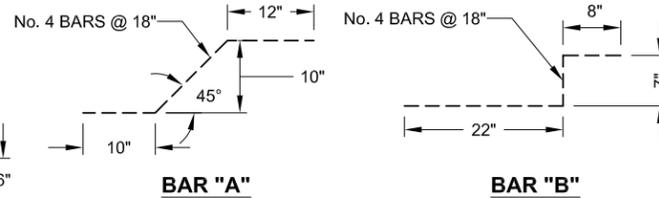
TRAIL TRANSITION AT RETAINING WALLS

NOT TO SCALE



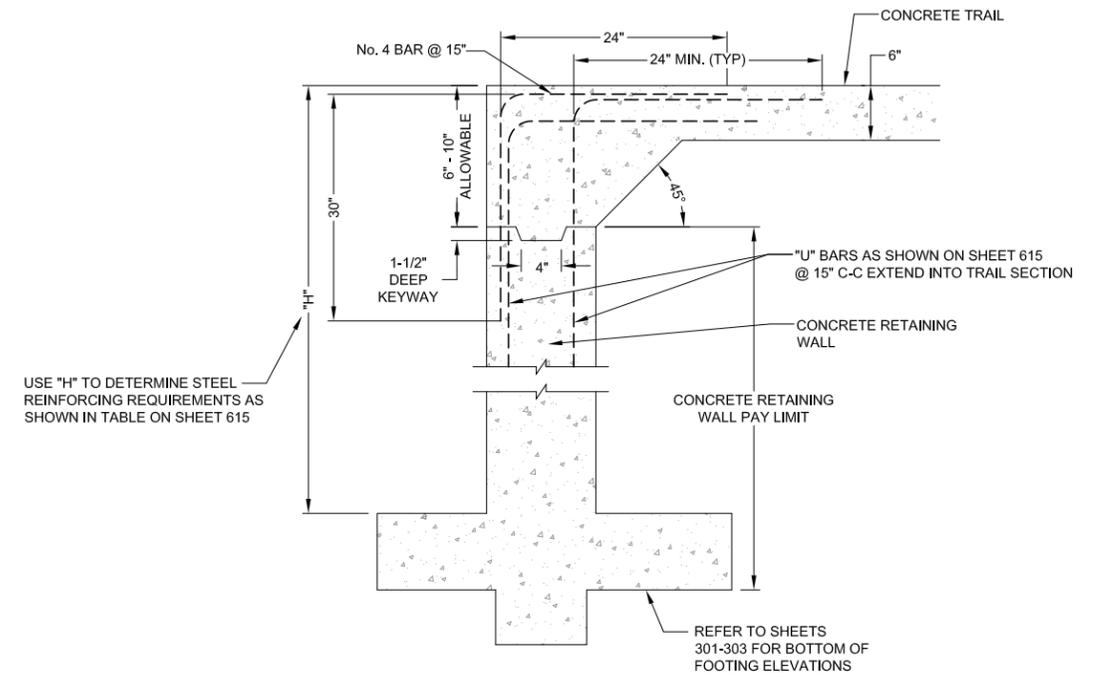
TRANSVERSE EXPANSION JOINT DETAIL

NOT TO SCALE



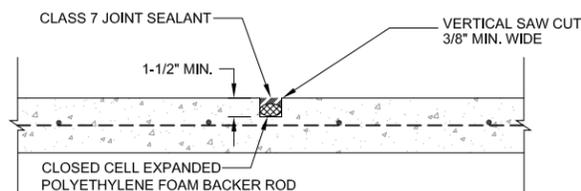
NOTES:

1. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED EVERY 200' OR LESS, OR AS REQUIRED BY THE PLANS.
2. ALL TRAIL CONSTRUCTION JOINTS MUST USE TRANSVERSE EXPANSION JOINT DETAIL THIS SHEET.
3. ALL TRANSVERSE EXPANSION JOINTS SHALL BE USED AT WALL JOINTS OR WHERE WALL CRACKS HAVE DEVELOPED.
4. NO EXPANSION JOINT SHALL BE PLACED WITH IN 10 FEET DOWN GRADIENT OF A PAVEMENT ANCHOR.
5. NO EXPANSION JOINT SHALL BE PLACED WITH IN 150 UP GRADIENT OF A PAVEMENT ANCHOR.



RETAINING WALL/TRAIL CONNECTION

NOT TO SCALE



SAWED JOINT DETAIL

NOT TO SCALE

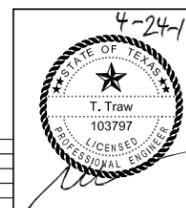
NOTES:

1. NO TOOLED JOINTS SHALL BE ALLOWED.
2. ALL EXPOSED EDGES SHALL HAVE BULL-NOSE OR 3/4" CHAMFER FINISH.
3. ALL SAWED JOINTS SHALL BE COMPLETED WITHIN 24 HOURS OF POURING, SO AS TO PREVENT RAVELING AND UNCONTROLLED CRACKING.
4. SPACING SHALL BE AT MIN. 10' CENTERS. NO TOOLED JOINTS ALLOWED.

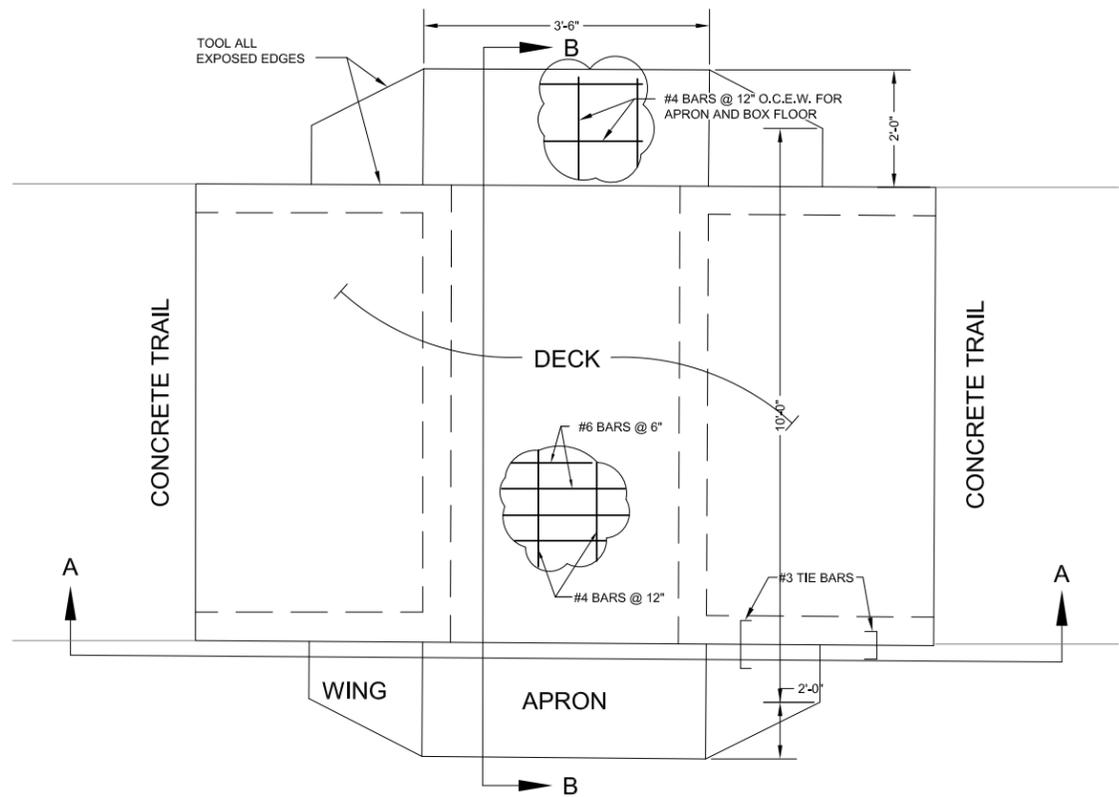
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DATE: Apr 24, 2017 1:50pm XREFS: GBS

F:\03_projects\2012\2012-057\cdwg\29 c-601 paving details.dwg

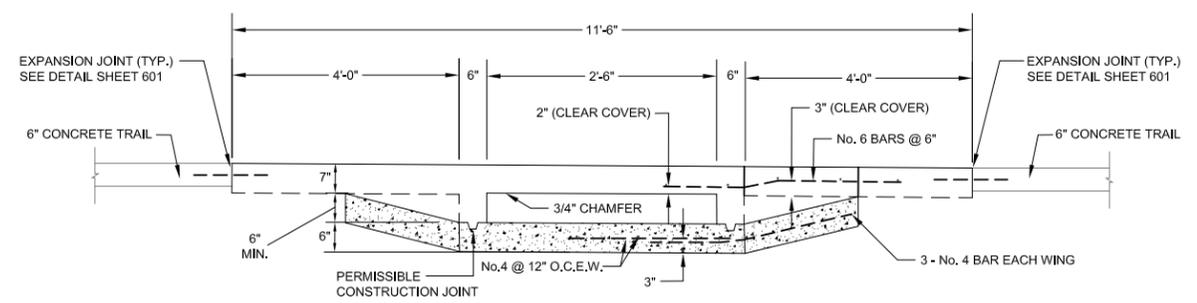
REVISION	DATE	DESCRIPTION



PAVING DETAILS	
HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK	
WICHITA FALLS, TEXAS	
BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834	
2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383	
DN. TT	DATE: APRIL 2017
DW. NG	SCALE: N.T.S.
CHK. TT	DWG.: 29 c-601 paving details.dwg
SHEET 601 29 OF 42	

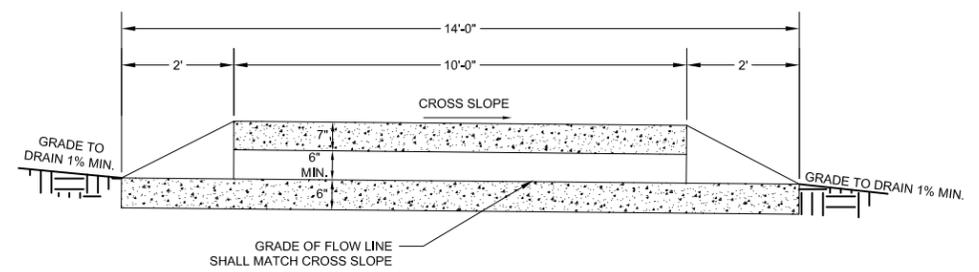


BOX CULVERT PLAN VIEW



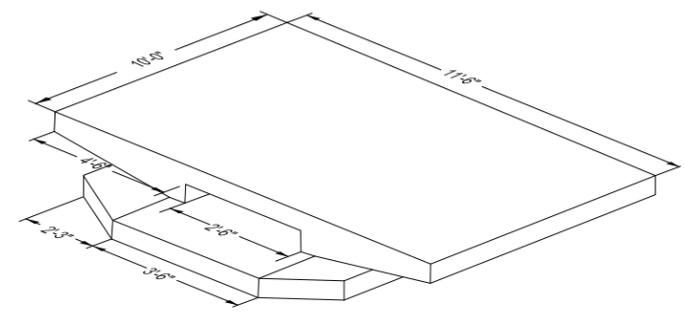
SECTION A - A

NOT TO SCALE



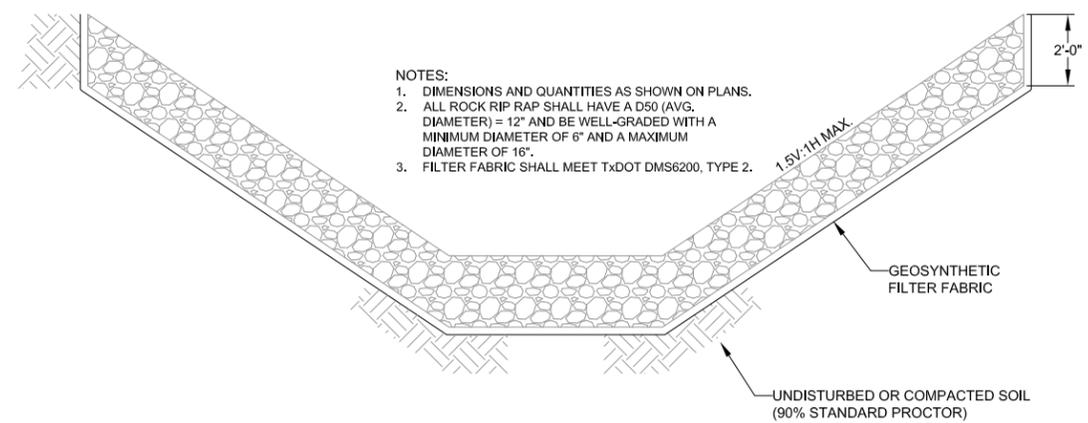
SECTION B - B

NOT TO SCALE



ISOMETRIC VIEW

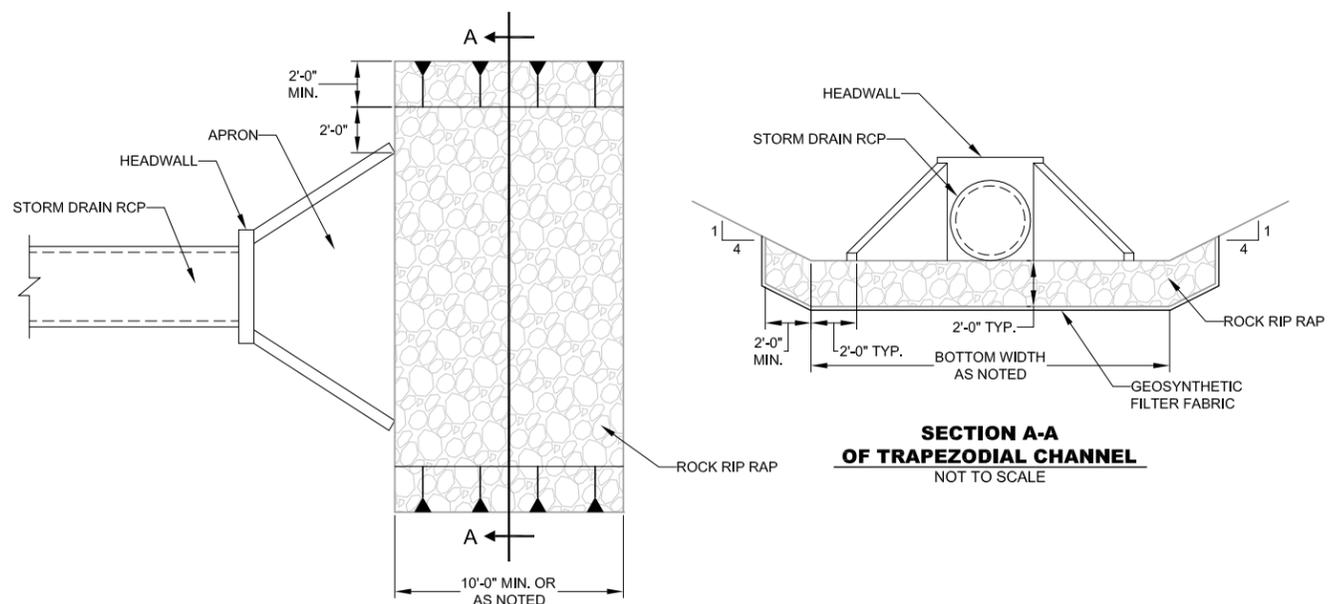
NOT TO SCALE



- NOTES:
1. DIMENSIONS AND QUANTITIES AS SHOWN ON PLANS.
 2. ALL ROCK RIP RAP SHALL HAVE A D50 (AVG. DIAMETER) = 12" AND BE WELL-GRADED WITH A MINIMUM DIAMETER OF 6" AND A MAXIMUM DIAMETER OF 16".
 3. FILTER FABRIC SHALL MEET TxDOT DMS6200, TYPE 2.

ROCK RIP RAP LINING (TYP.)

NOT TO SCALE



SECTION A-A OF TRAPEZOIDAL CHANNEL

NOT TO SCALE

TRAPEZOIDAL CHANNEL DETAIL

NOT TO SCALE

DWG: F:\03_Projects\2012\2012-057\c\dwg\29 C-601 PAVING DETAILS.dwg USER: ngamm
 DATE: Apr 24, 2017 1:50pm XREFS: GBS

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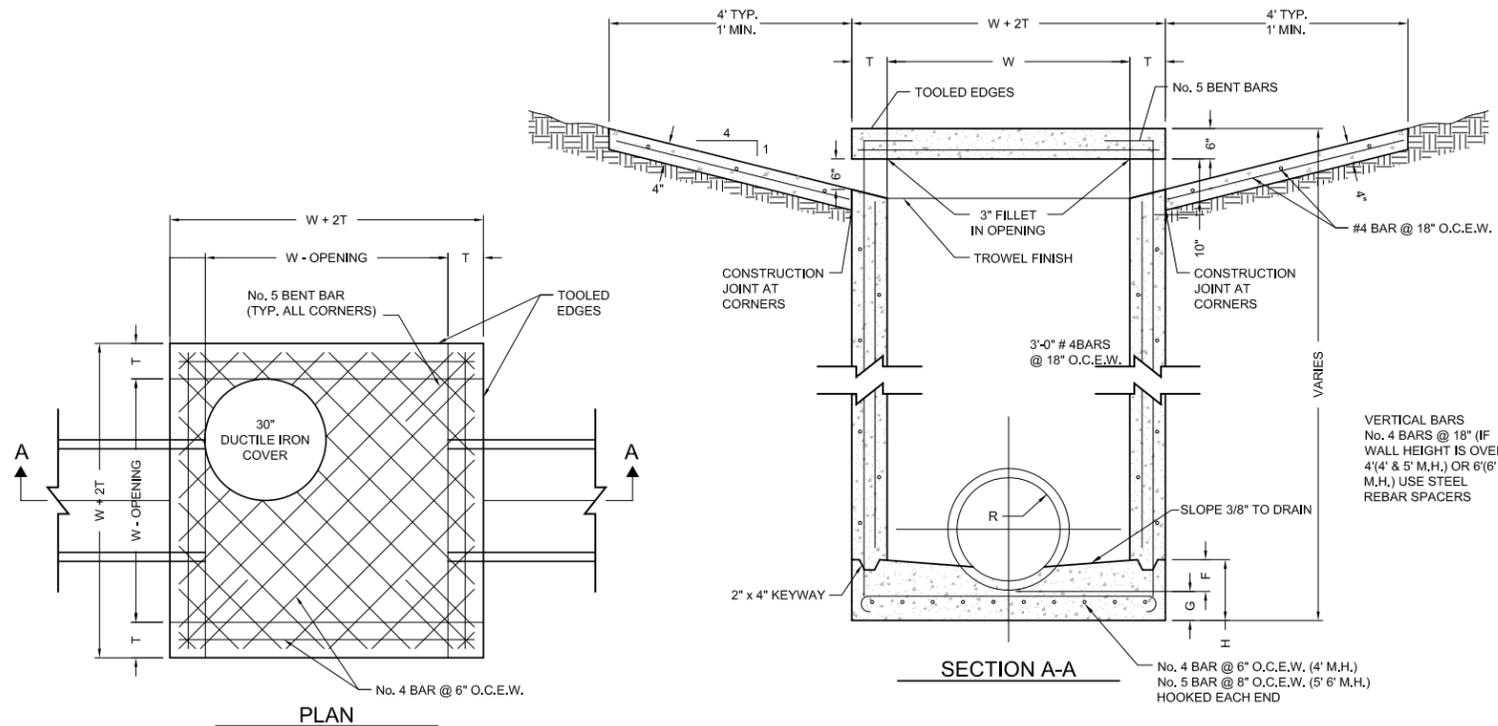
REVISION	DATE	DESCRIPTION



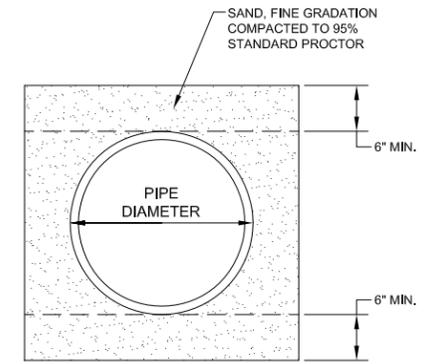
CULVERT DETAILS HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK WICHITA FALLS, TEXAS	
BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383	
DN. TT DW. NG CHK. TT	DATE: APRIL 2017 SCALE: N.T.S. DWG.: 29 c-601 paving details.dwg
SHEET 602 30 OF 42	

INLET SIZE	T	W
2' SQUARE	7"	2'-0"
4' SQUARE	7"	4'-0"
5' SQUARE	8"	5'-0"
6' SQUARE	9"	6'-0"

INLET SIZE	V	T	E	F	G	H
4'	5'-4"	8"	6"	9"	6"	1'-3"
5'	6'-4"	8"	6"	12"	8"	1'-8"
6'	7'-6"	9"	9"	16"	10"	2'-2"



AREA INLET
SCALE : N.T.S.

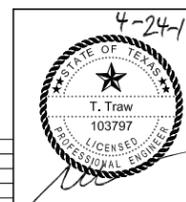


PIPE EMBEDMENT CLASS C-1
SCALE : N.T.S.

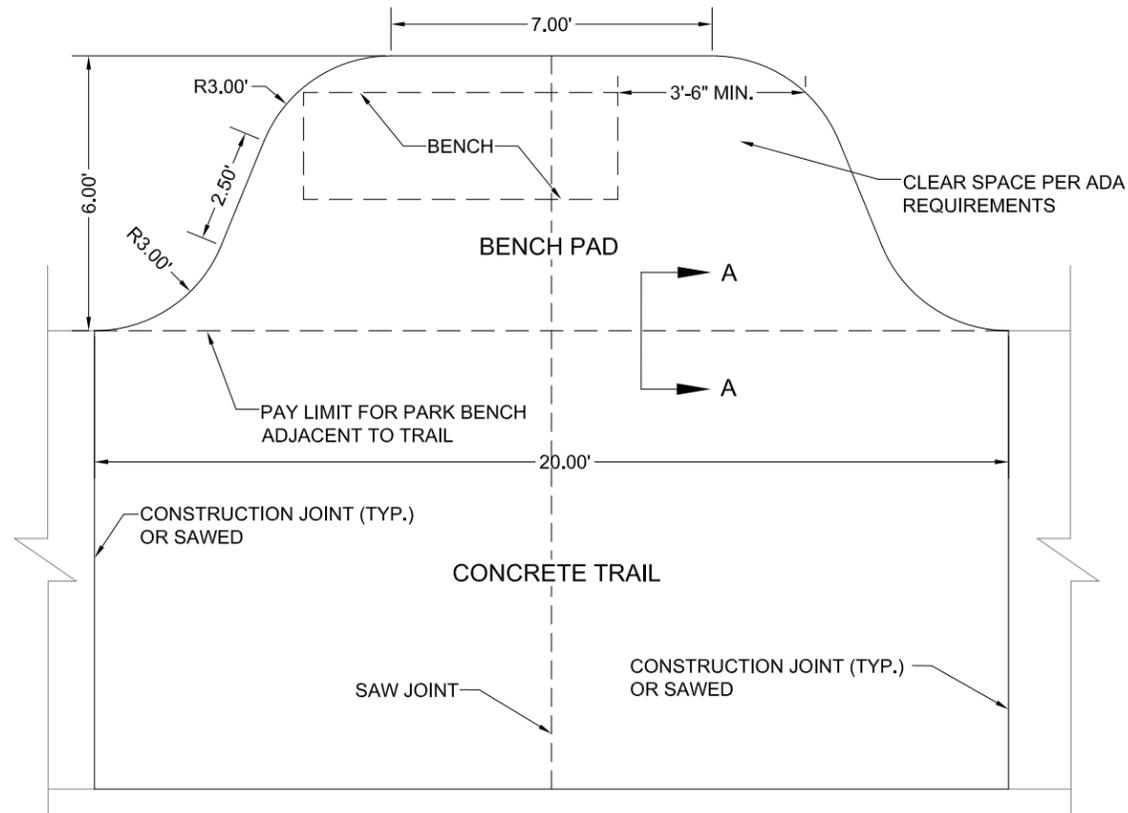
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 DATE: Apr 24, 2017 10:10pm XREFS: GBS

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REVISION	DATE	DESCRIPTION

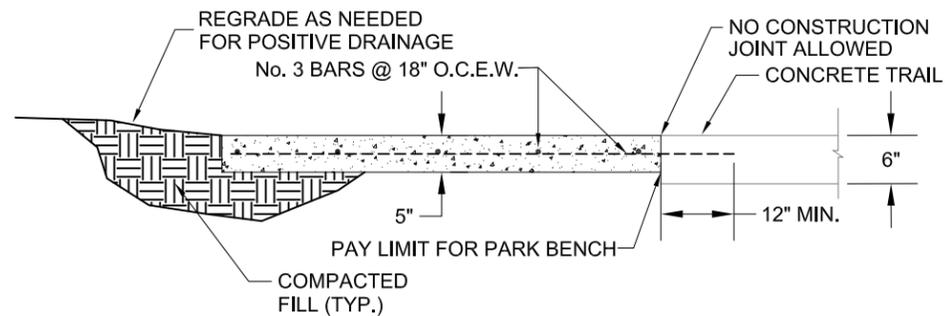


STORM DETAILS		
HIKE & BIKE TRAIL FROM LOOP 11 TO LUCY PARK		
WICHITA FALLS, TEXAS		
 BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE V: (940) 766-0156 WICHITA FALLS, TX 76301 F: (940) 766-3383		
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: N.T.S.	603
CHK. TT	DWG.: 29 c-601 paving details.dwg	31 OF 42



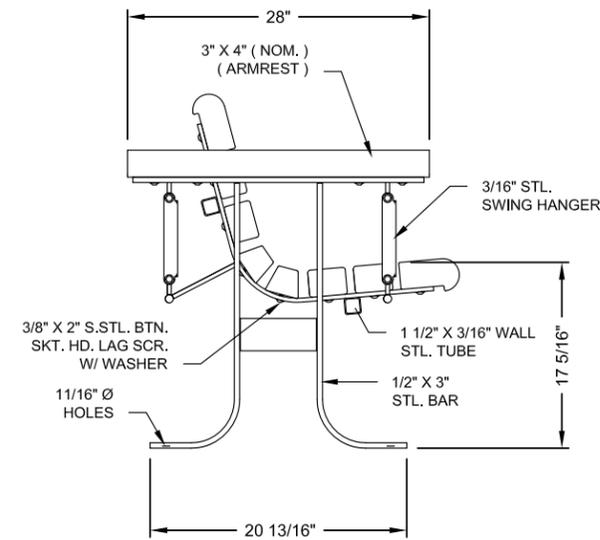
PARK BENCH CONCRETE PAD

NOT TO SCALE



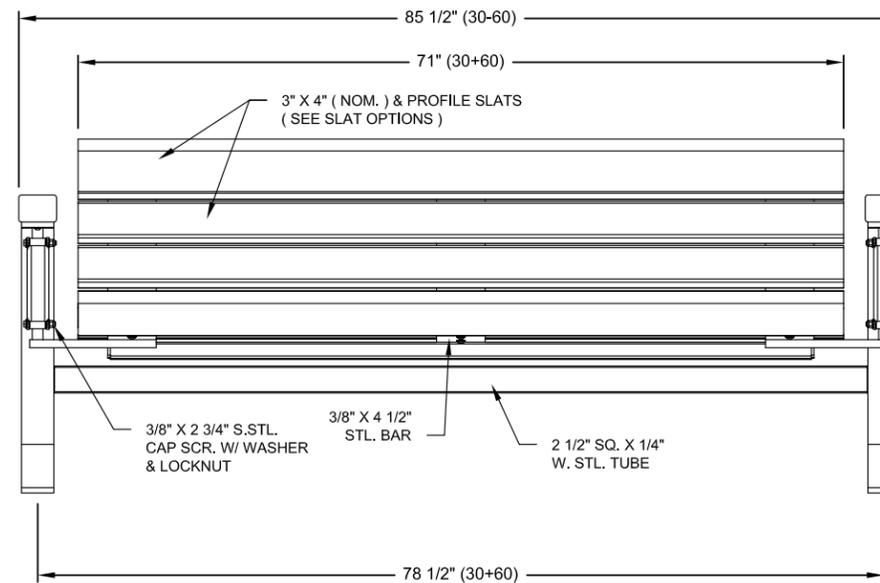
PARK BENCH CONCRETE PAD - SECTION A-A

NOT TO SCALE



TYPICAL PARK BENCH - END VIEW

NOT TO SCALE



TYPICAL PARK BENCH - FRONT VIEW

NOT TO SCALE

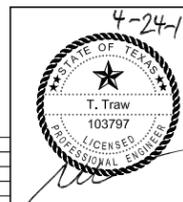
GENERAL NOTES - PARK BENCH

1. PARK BENCHES SHALL BE ITEM NO. 63-611-6PL BY DUMOR INCORPORATED DISTRIBUTED BY PAUL E. ALLEN COMPANY INCORPORATED, FLOWER MOUND, TEXAS (888) 877-4887, OR APPROVED EQUAL.
2. PARK BENCHES SHALL HAVE CEDAR COLOR RECYCLED PLASTIC SLATS AND POWDER-COATED FINISHED METAL FRAME, WITH "GULL WING" STYLE SUPPORTS AND FASTENED TO CONCRETE PAD (POST CONSTRUCTION) PER MANUFACTURER'S RECOMMENDATIONS.
3. INSTALLED PARK BENCHES SHALL BE FREE FROM DEFECT AND SQUARE TO EDGE OF CONCRETE, CENTERED IN BOTH DIRECTIONS ON THE BENCH PAD, AND ORIENTED AT THE DISCRETION OF THE OWNER.
4. CONCRETE PAD SHALL BE POURED MONOLITHICALLY WITH A 20' LONG SECTION OF TRAIL WITH NO SAW JOINTS.
5. CONCRETE PAD AND PARK BENCH ARE CONSIDERED A COMBINED SINGLE BID ITEM.
6. ANY EXCAVATION OR FILL REQUIRED FOR PLACEMENT OF PAD SHALL BE INCLUDED.
7. FINAL GRADING SHALL PROVIDE SMOOTH TRANSITION PROVIDING POSITIVE DRAINAGE IN THE DIRECTION OF TRAIL CROSS SLOPE WITH SLOPES NOT EXCEEDING 4H:1V.
8. BENCHES SHALL BE PLACED ON PAD WITH 4' CLEAR ON ONE END FOR COMPLIANCE WITH ADA.
9. BENCH PAD SHALL BE GRADED SO THAT BENCH SEAT IS NO STEEPER THEN 0.5%.

PARK BENCH DETAIL

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS

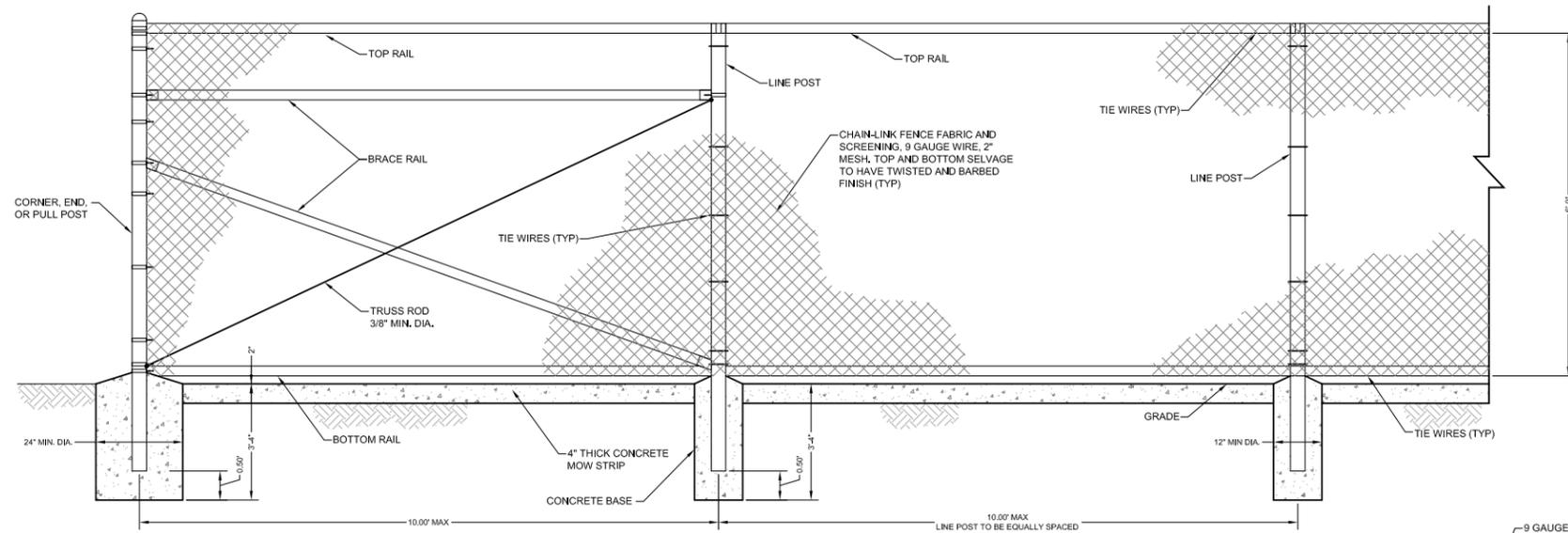


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TEXAS REGISTERED ENGINEERING FIRM F-834
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WICHITA FALLS, TX 76301 F: (940) 766-3383

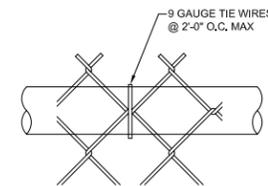
DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: N.T.S.	604
CHK. TT	DWG.: 29 c-601 paving details.dwg	32 OF 42

REVISION	DATE	DESCRIPTION

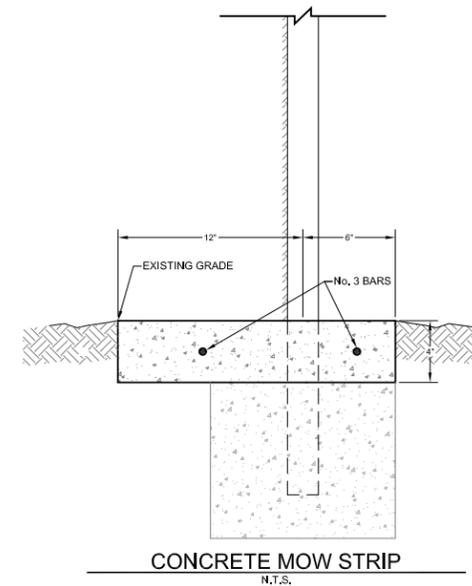
USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FABRIC LESS THAN 72"	FABRIC 72" TO 80"	FABRIC OVER 80"
CORNER, END & PULL POST			
TUBULAR-ROUND	2.375" O.D.	2.875" O.D.	4.00" O.D.
LINE POST			
TUBULAR-ROUND	1.90" O.D.	2.375" O.D.	2.875" O.D.
TOP BOTTOM & BRACE RAILS			
TUBULAR-ROUND		1.66" O.D.	
TUBULAR SQUARE		1.50" O.D.	
H SECTION		1.625" x 1.50"	
C SECTION (ROLL-FORMED)		1.625" x 1.25"	



CHAIN LINK SECURITY FENCE DETAIL
N.T.S.



TOP OR BRACE RAIL ATTACHMENT
N.T.S.



CONCRETE MOW STRIP
N.T.S.

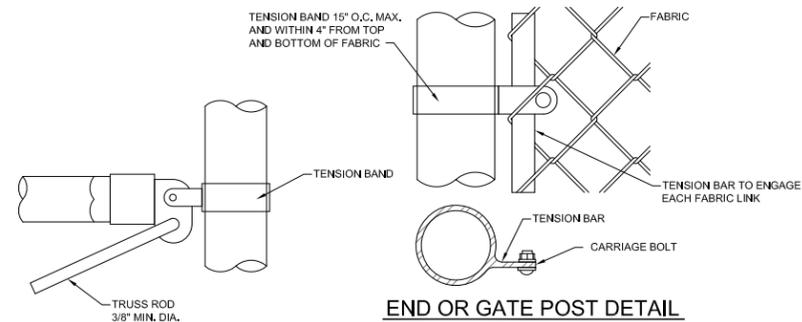


NOTE: SEE GENERAL NOTE 6.

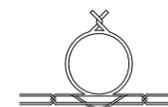
NO TRESPASSING SIGN
N.T.S.

GENERAL NOTES:

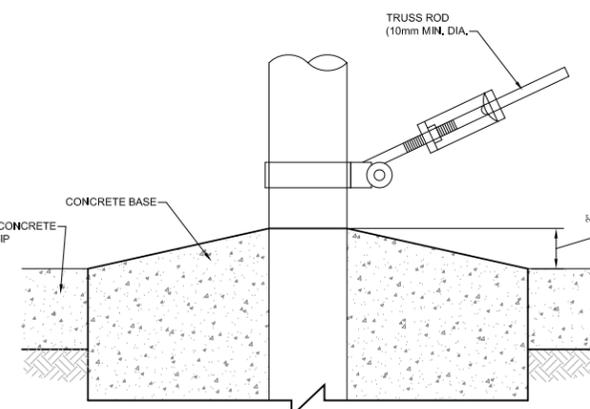
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION.
2. WIRE TIES, RAILS, POST AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE OPPOSITE SIDE OF THE SECURE AREA.
3. C-SECTION POST SHALL BE INSTALLED SO THAT THE VOID INSIDE THE POST IS COMPLETELY FILLED WITH CONCRETE UP TO THE TOP OF THE FOUNDATION.
4. BOTTOM RAIL SHALL BE ATTACHED TO DOUBLE RAIL ENDS USING 3/8" DIA. CARRIAGE BOLTS AS SHOWN.
5. FENCE SHALL BE INSTALLED SO THAT ALL FASTENERS, POLES, SUPPORT BARS, AND BRACES ARE ON THE SECURE SIDE OF THE FENCE.
6. WARNING SIGNS SHALL BE FURNISHED AND INSTALLED ON THE GATE. SIGNS SHALL BE 12" x 16" ALUMINUM PLATE (STANDARD 080 THICKNESS) CONTAINING THE TEXT (UNO FONT) DEPICTED WITH BLACK TEXT ON WHITE BACKGROUND, AND WHITE TEXT WITH RED BACKGROUND FOR THE WORDS " NOTICE " & " NOTICIA ".
7. FENCE SCREENING FABRIC SHALL BE INSTALLED PER MANUFACTURES RECOMMENDATIONS. SCREENING FABRIC SHALL BE GREEN IN COLOR, 100% POLYPROPYLENE, AN 85% SHADE PERCENTAGE OR GREATER, A MATERIAL WEIGHT OF 6 OZ/YD OR GREATER, AND A 4 YEAR MINIMUM EXPECTED LIFE SPAN. THE SCREENING FABRIC SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.



END OR GATE POST DETAIL
N.T.S.



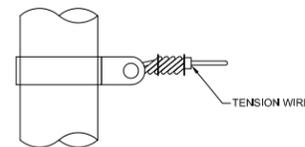
LINE POST ATTACHMENTS
N.T.S.



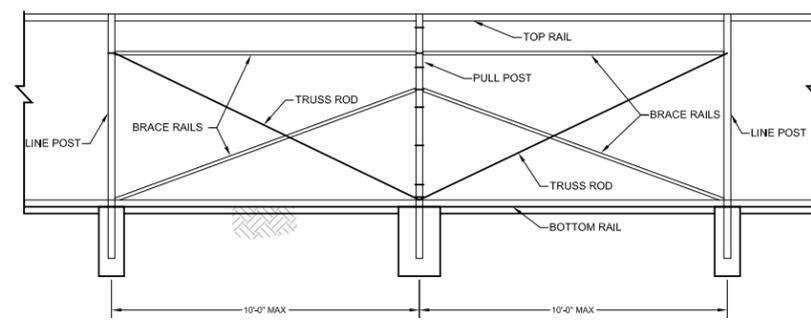
TRUSS AND ROD BAND
N.T.S.



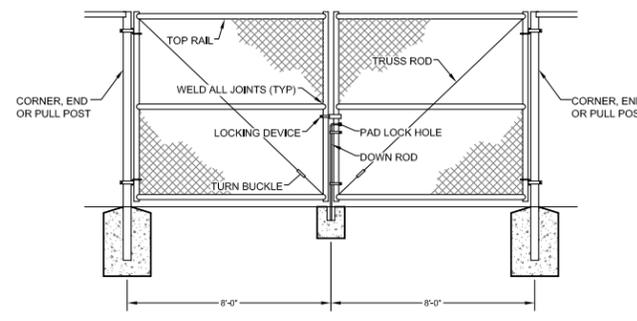
FASTENING DETAILS
N.T.S.



TENSION BAND DETAIL
N.T.S.



BRACE PANEL DETAILS
N.T.S.

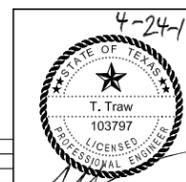


GATE DETAILS
N.T.S.

FENCE DETAILS

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS



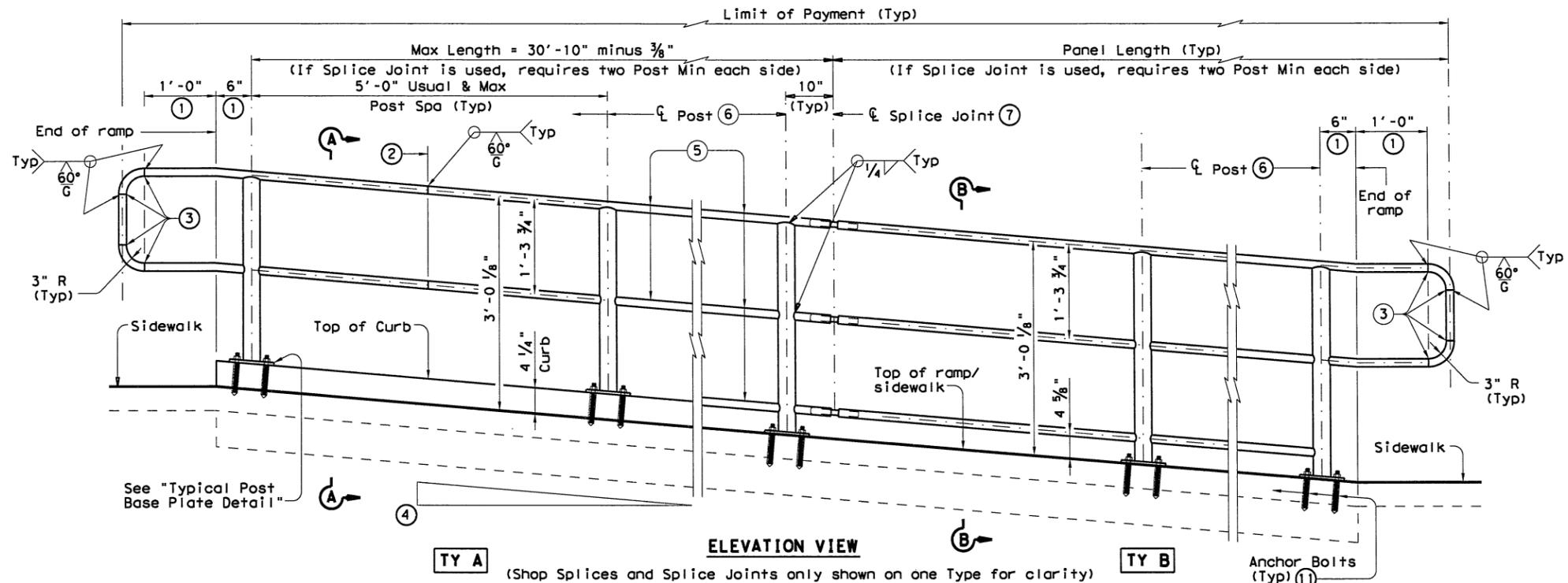
BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS / SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-834
2500 BROOK AVENUE WICHITA FALLS, TX 76701 V: (940) 766-0156 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	605
CHK. TT	DWG.: 33-c-605 fence details.dwg	33 OF 42

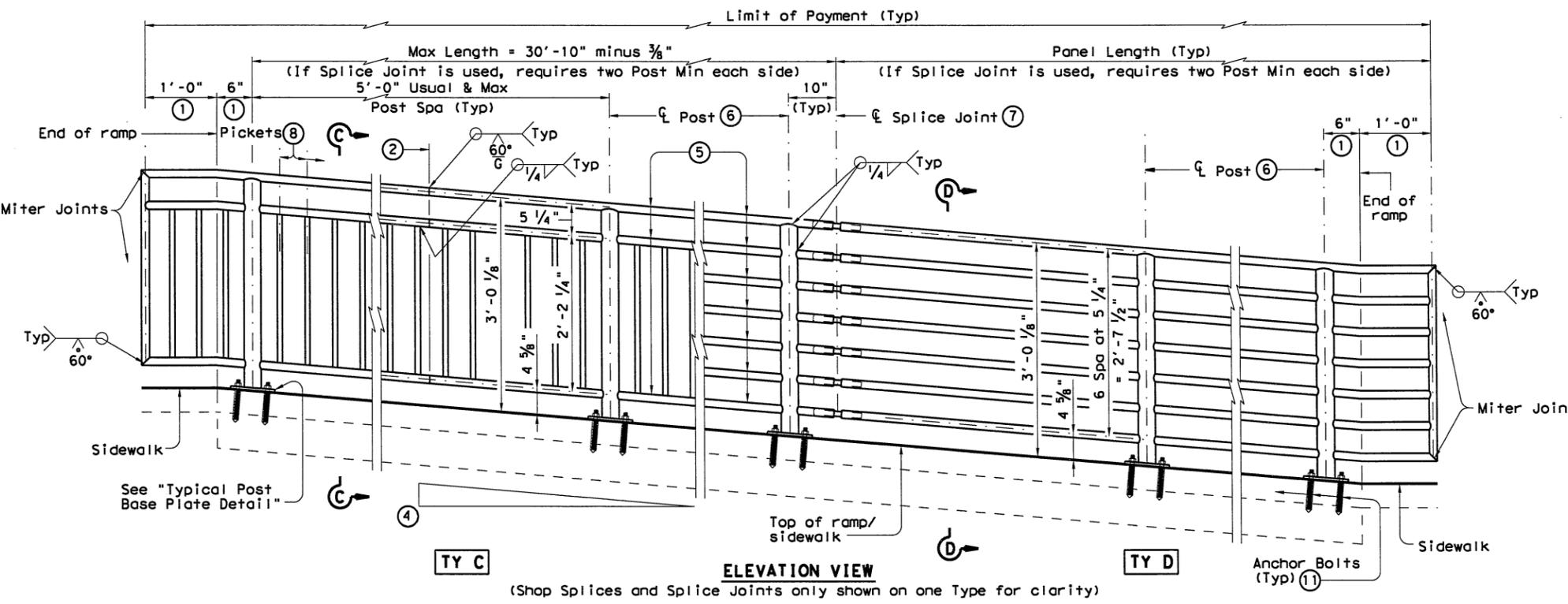
REVISION	DATE	DESCRIPTION

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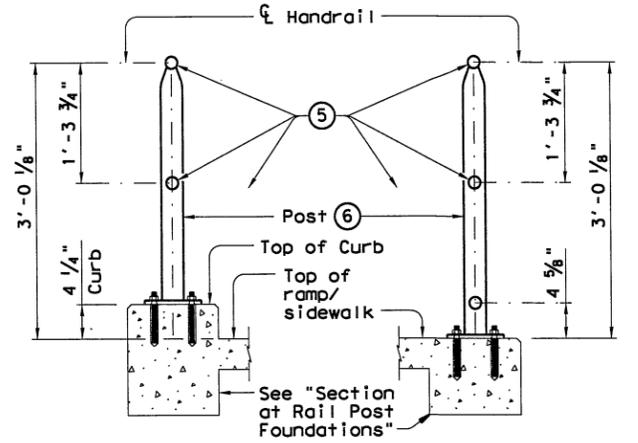


TY A (Shop Splices and Splice Joints only shown on one Type for clarity) **TY B**

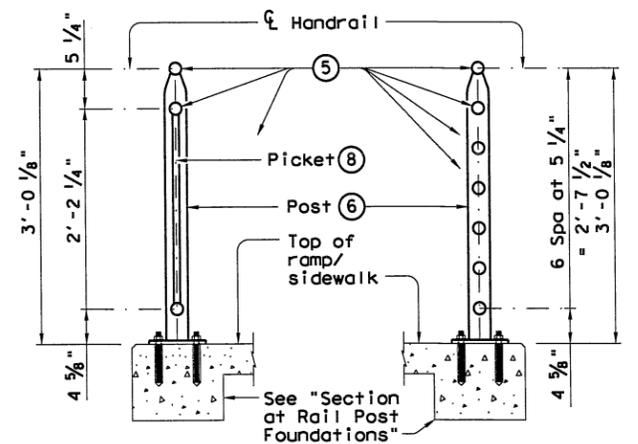


TY C (Shop Splices and Splice Joints only shown on one Type for clarity) **TY D**

RECOMMENDED USAGE (9) (10)	
Dropoff Height/Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



SECTION A-A (Showing Handrail TY A) **SECTION B-B** (Showing Handrail TY B)



SECTION C-C (Showing Handrail TY C) **SECTION D-D** (Showing Handrail TY D)

SHEET 1 OF 3

- ① Parallel to ground.
- ② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
- ⑦ See "Handrail Fabrication Details" for Splice Joints.
- ⑧ 5/8" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑨ When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.
- ⑩ Not to be used on bridges.
- ⑪ See "General Notes" for anchor bolt information.

Texas Department of Transportation Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13
PAGE 1 OF 3

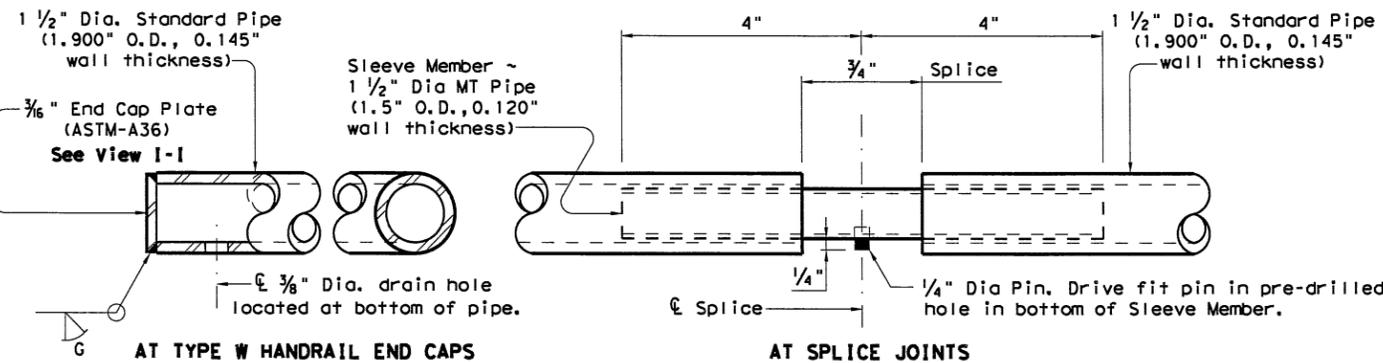
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FILE: prd13.dgn
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REVISED MAY, 2013 (VP)

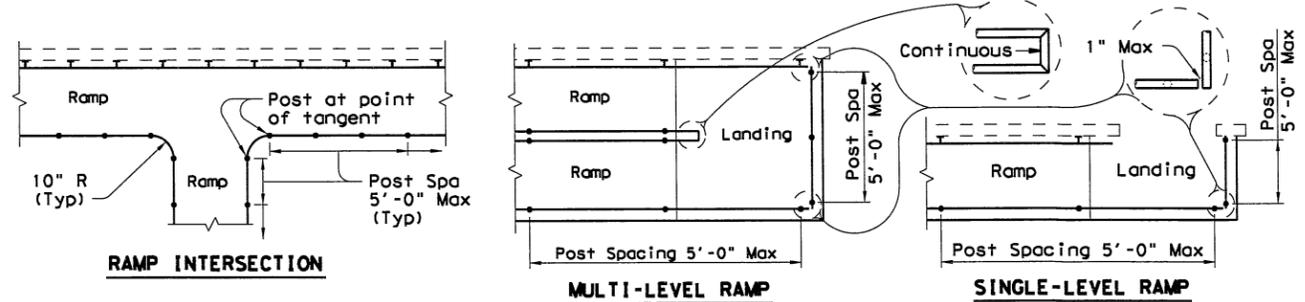
2500 BROOK AVENUE WICHITA FALLS, TX 76701
V: (840) 766-0168 F: (840) 766-3383

DN. IT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: N.T.S.	606
CHK. TT	DWG. 2/28/2013	34 OF 42

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HANDRAIL FABRICATION DETAILS



PLAN SHOWING RAIL AT RAMP CONDITIONS

GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be 5/8" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. 3/8" Dia. threaded rod embedment depth for wall mounts is 3 1/2" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxyes and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be 5/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

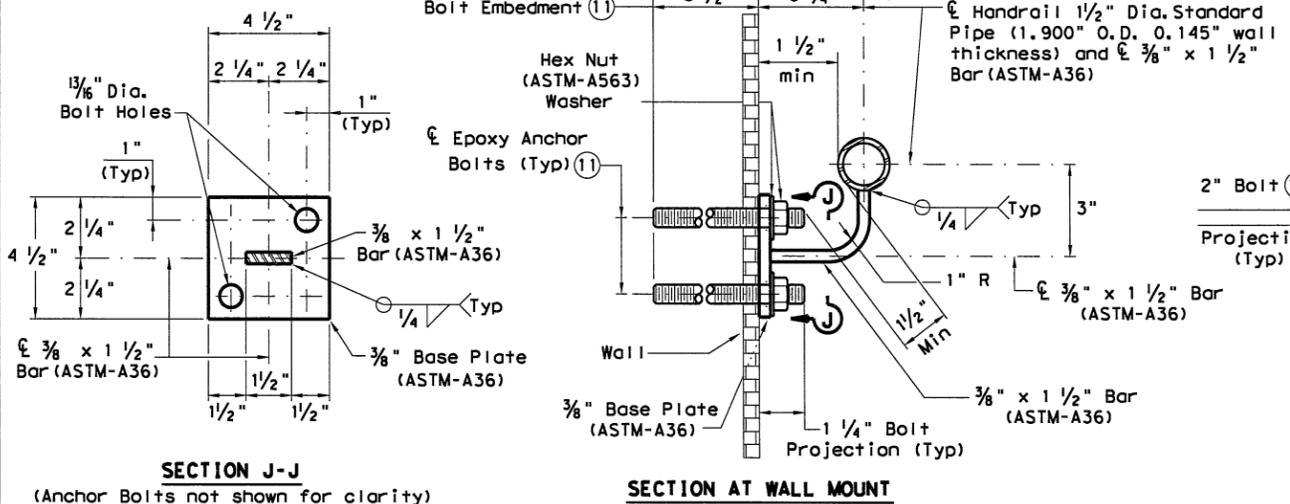
For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

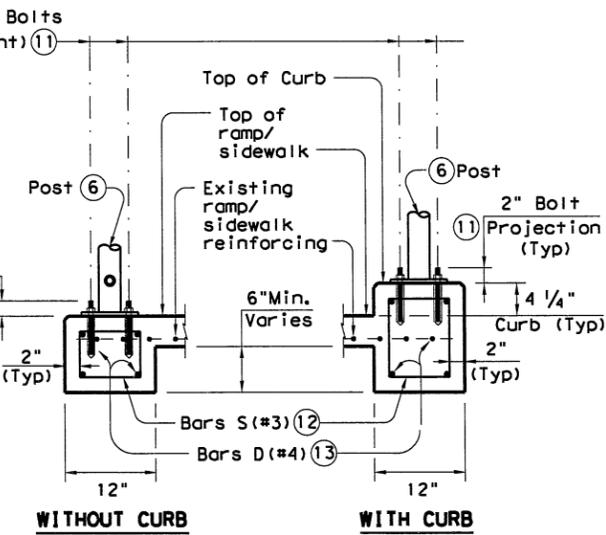
Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

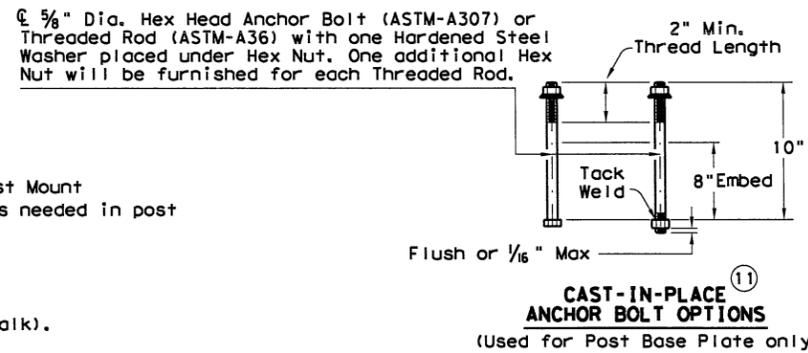
All exposed edges will be rounded or chamfered to approximately 1/8" by grinding.



TYPICAL WALL MOUNT DETAILS

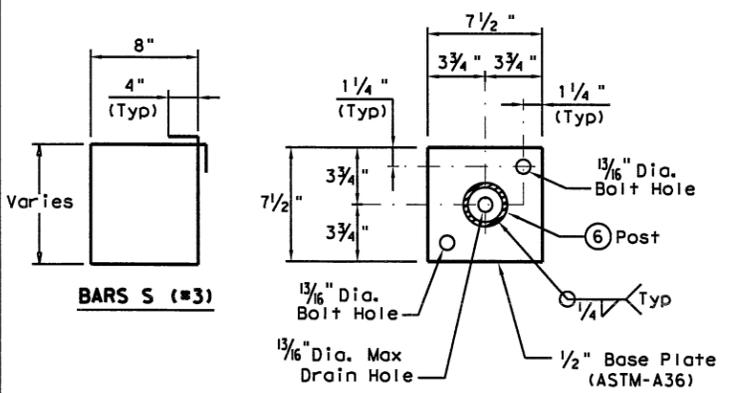


SECTION AT RAIL POST FOUNDATIONS

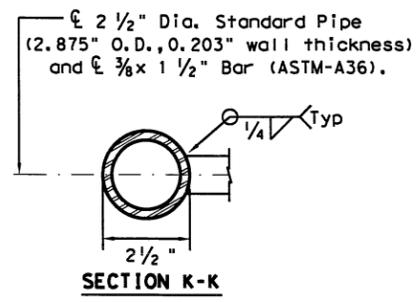


CAST-IN-PLACE ANCHOR BOLT OPTIONS
(Used for Post Base Plate only)

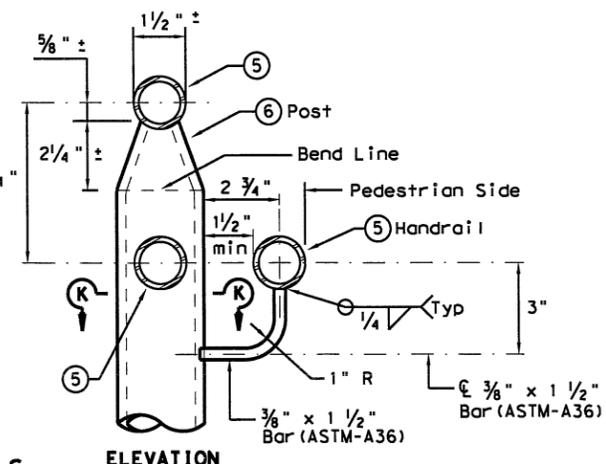
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diameter of top rail. Provide holes as needed in post for galvanizing drainage and venting.
- ① See "General Notes" for anchor bolt information.
- ② Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).
- ③ Provide 1 1/2" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



TYPICAL POST BASE PLATE DETAIL



POST MOUNT DETAILS



ELEVATION

Design Division Standard
PEDESTRIAN HANDRAIL
 DETAILS
 PRD-13
 PAGE 3 OF 3

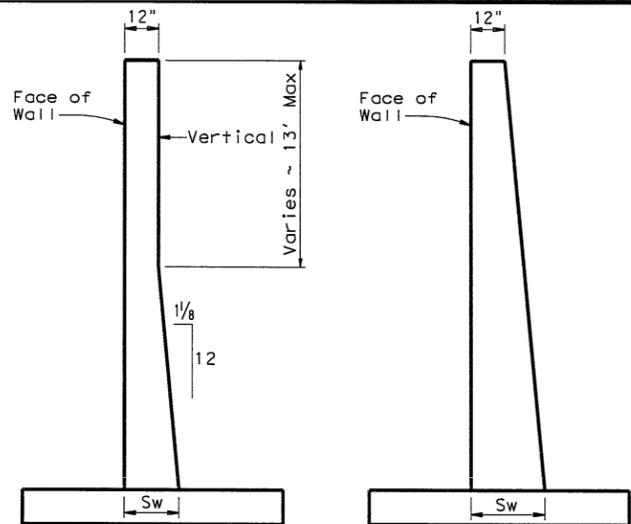
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 CONSULTING ENGINEERS / SURVEYORS
 TEXAS REGISTERED ENGINEERING FIRM F-834
 2500 BROOK AVENUE WICHITA FALLS, TX 76701
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FILE: prd13.dgn
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 REVISIONS
 REVISED MAY, 2013 (VP)

DN: TT	DATE: APRIL 2017	SHEET
DW: NG	SCALE: N.T.S.	608
CHK: TT	DWG: 2017-000000	36 OF 42

DATE: FILE:

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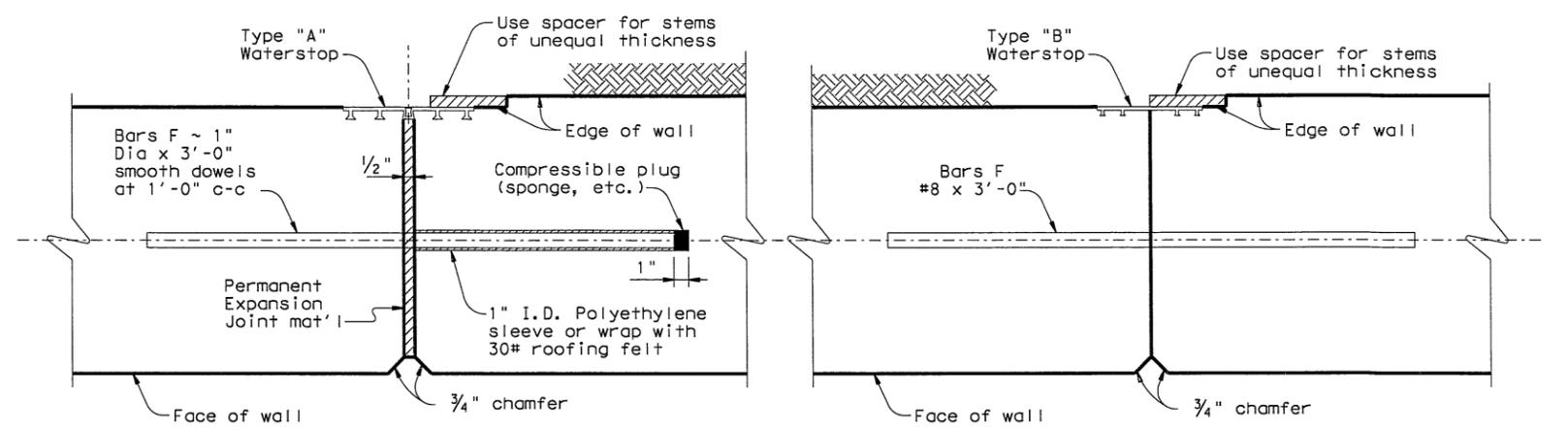


AS DETAILED ALL HEIGHTS
 (Basis for payment)

FRONT FACE VERTICAL BACK FACE SLOPED

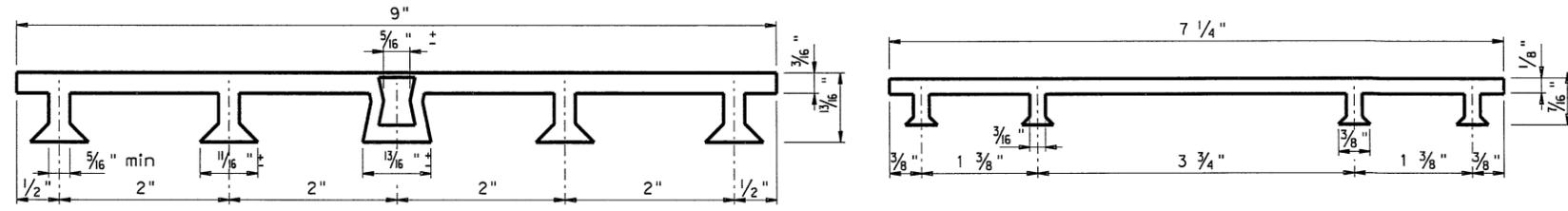
ALTERNATE STEM SLOPE DETAILS

Walls with slopes other than those shown may be used after approval by the Engineer. Sw shall not be less than shown in Table on Sheet 1. No payment will be made for excess concrete due to changing of slope of wall stem.



EXPANSION JOINT

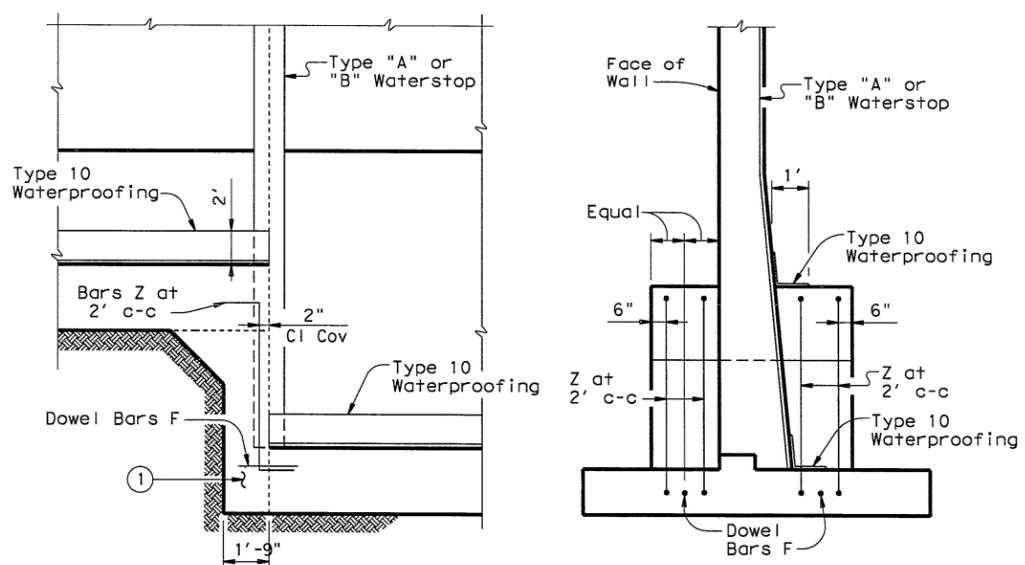
CONSTRUCTION JOINT



PVC WATERSTOP TYPE "A"

PVC WATERSTOP TYPE "B"

Note: Dimensions and shapes may vary slightly depending on manufacturer.

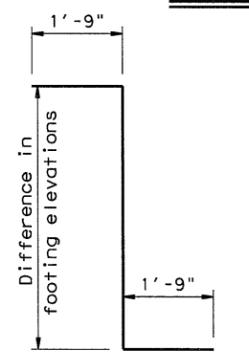


PARTIAL ELEVATION

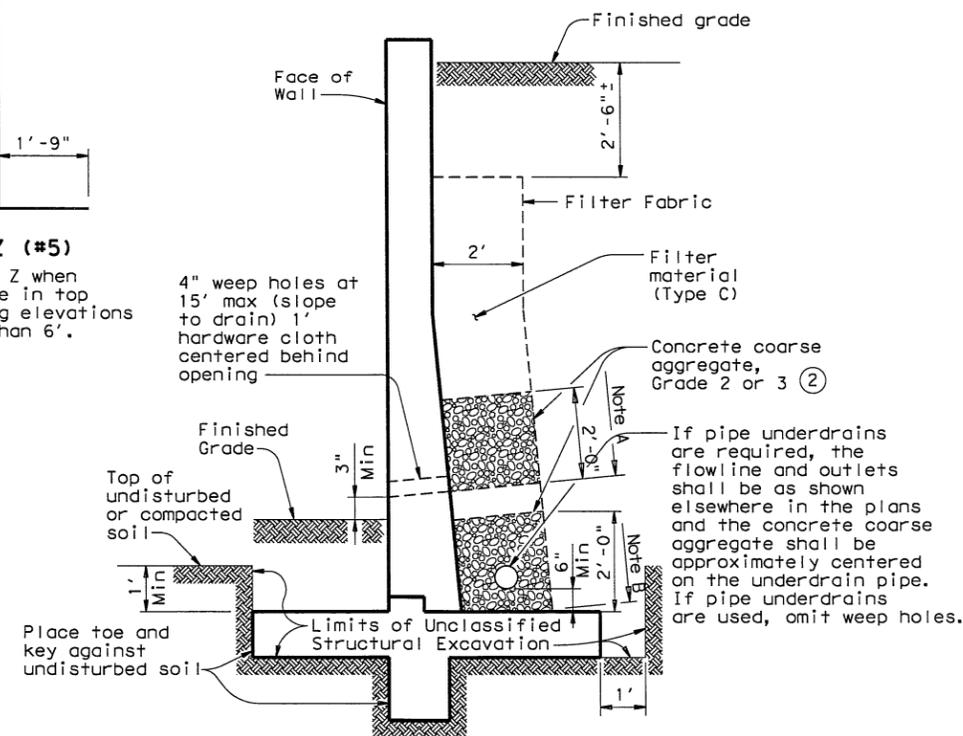
PARTIAL SECTION

SHOWING WATERSTOP AT FOOTING JOINT

① Unreinforced Class "C" Concrete when difference in top of footing elevations is less than 6'. Omit when Dowel Bars F can be placed between adjacent footings with 4" cover top and bottom.



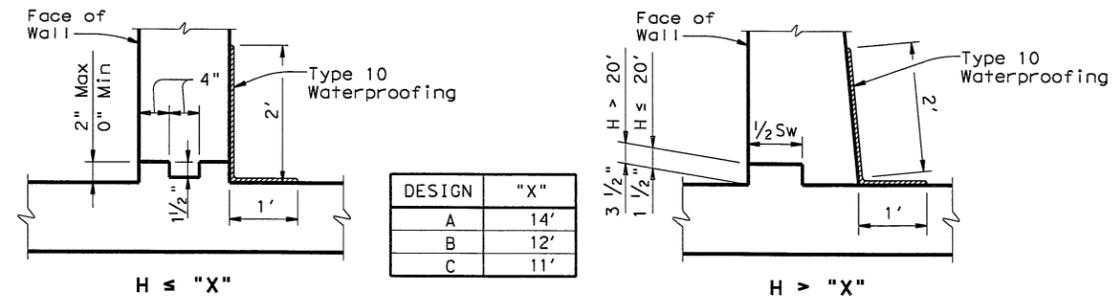
BARS Z (#5)
 Omit Bars Z when difference in top of footing elevations is less than 6'.



DRAINAGE DETAILS AND EXCAVATION DIAGRAM

Note A: Stop coarse aggregate at this level when weep holes are used.
 Note B: Use coarse aggregate to here with filter material above when underdrains are used.

GENERAL NOTES:
 Walls are designed assuming unit weight of soil = 120 pcf, and coefficient of horizontal earth pressure = 0.33.
 Walls are designed to provide a minimum factor of safety against sliding of 1.5. The undisturbed or compacted soil depth in front of walls, from bottom of Key up, shall not be less than $K_w + F_t + 1'$.
 Retaining walls are detailed to be placed on grades up thru 10% with footing level, with no changes in reinforcing steel. Steeper grades can be accommodated by shortening Bars A1 and B and increasing length of legs of Bars U by the same amount. No change in Quantities will be involved.
 Retaining walls may be placed on Horizontal Curves by adjusting lengths of footing Bars T and H. Minor revisions of Concrete Quantities may be required.
 Designed in accordance with current AASHTO Standard and Interim Specifications.
 All concrete to be Class "C".
 All reinforcing steel to be Grade 60.



JOINT AND WATERSTOP DETAILS

DESIGN	"X"
A	14'
B	12'
C	11'

Texas Department of Transportation

Bridge Division Standard

RETAINING WALL
 MISCELLANEOUS DETAILS

RW 2

FILE: rwstde11.dgn

March 2010

04-11: Added Note 2.

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 TEXAS REGISTERED ENGINEERING FIRM F-934
 2500 BROOK AVENUE
 WICHITA FALLS, TX 76301
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 F: (840) 766-3383

DATE: APRIL 2017

SCALE: N.T.S.

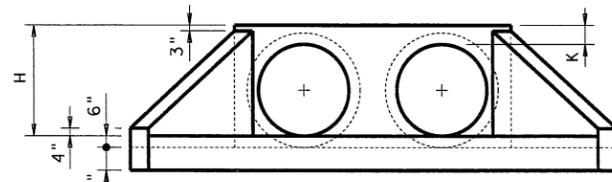
SHEET 610

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DATE: FILE:

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

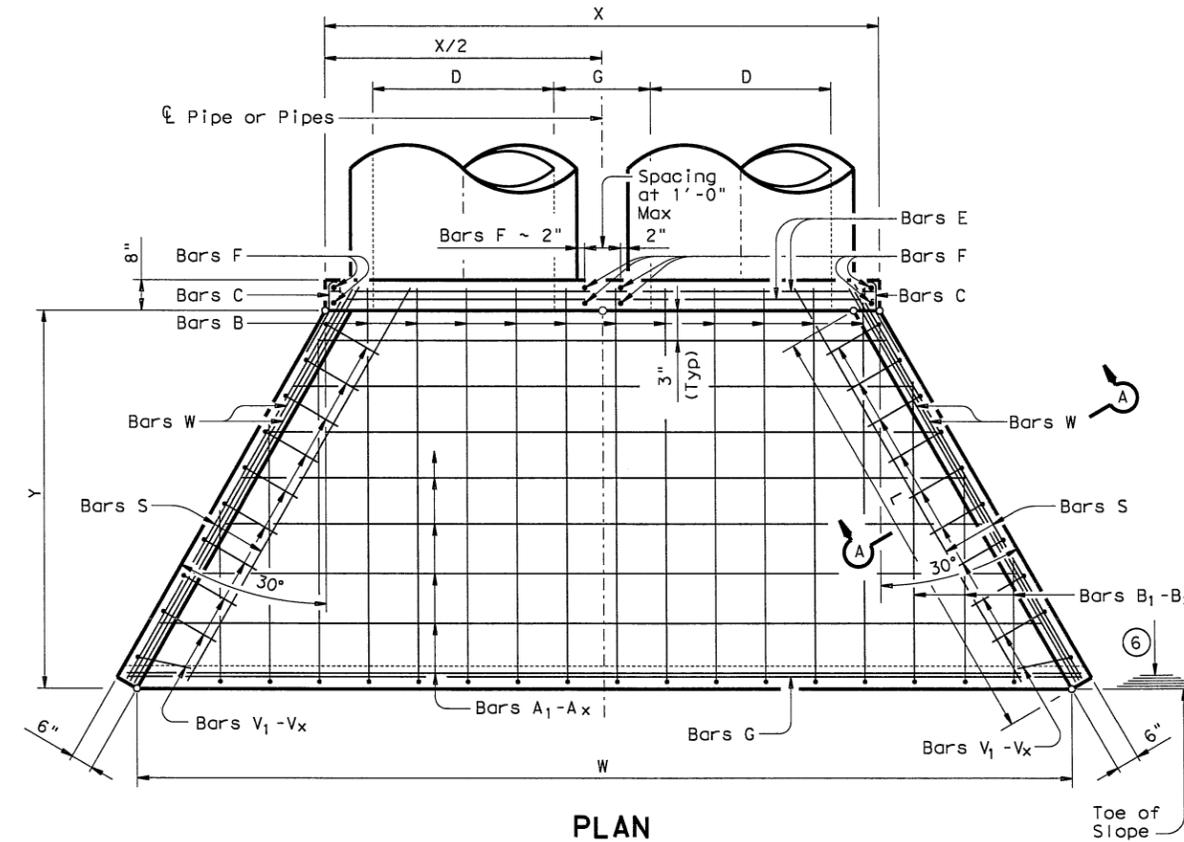
SLOPE DIA OF PIPE, D	Values for one Pipe					Values to be added for each addtl Pipe				
	W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	X and W	Reinf (Lbs)	Conc (CY) (1)	
12"	4'- 7 1/2"	2'- 6"	2'-10"	3'- 3 1/4"	84	0.6	1'- 9"	20	0.2	
15"	5'- 5 3/4"	2'- 9 1/2"	3'- 4"	3'-10 1/4"	99	0.7	2'- 2"	24	0.3	
18"	6'- 4 1/4"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3	
21"	7'- 2 3/4"	3'- 4 1/2"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4	
24"	8'- 2 1/2"	3'- 9 1/2"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5	
27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6	
30"	9'-11 1/2"	4'- 4 1/2"	5'-10"	6'- 8 3/4"	197	1.7	4'- 4"	65	0.8	
33"	10'-10"	4'- 8"	6'- 4"	7'- 3 3/4"	216	2.0	4'- 8"	71	0.9	
36"	11'- 8 1/4"	4'-11 1/2"	6'-10"	7'-10 3/4"	241	2.2	5'- 1"	81	1.0	
42"	13'- 5 1/4"	5'- 6 1/2"	7'-10"	9'- 0 1/2"	290	2.8	5'-10"	97	1.3	
48"	15'- 9"	6'- 1 1/2"	9'- 4"	10'- 9 1/4"	350	3.8	6'- 7"	117	1.7	
54"	17'- 5 3/4"	6'- 8 1/2"	10'- 4"	11'-11 1/4"	415	4.5	7'- 6"	151	2.1	
60"	19'- 2 3/4"	7'- 3 1/2"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5	
66"	20'-11 1/2"	7'-10 1/2"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9	
72"	22'- 8 1/2"	8'- 5 1/2"	13'- 4"	15'- 4 3/4"	587	7.1	9'- 4"	213	3.3	
12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2	
15"	7'- 5"	2'- 9 1/2"	5'- 0"	5'- 9 1/4"	133	1.1	2'- 2"	28	0.3	
18"	8'- 6 3/4"	3'- 1"	5'- 9"	6'- 7 3/4"	166	1.3	2'- 8"	37	0.5	
21"	9'- 8 3/4"	3'- 4 1/2"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6	
24"	11'- 0"	3'- 9 1/2"	7'- 3"	8'- 4 1/2"	221	2.0	3'- 7"	58	0.7	
27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 3/4"	245	2.3	3'-11"	67	0.8	
30"	13'- 4"	4'- 4 1/2"	8'- 9"	10'- 1 1/4"	287	2.7	4'- 4"	77	1.0	
33"	14'- 5 3/4"	4'- 8"	9'- 6"	10'-11 3/4"	310	3.1	4'- 8"	84	1.2	
36"	15'- 7 3/4"	4'-11 1/2"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4	
42"	17'-11 1/2"	5'- 6 1/2"	11'- 9"	13'- 6 3/4"	424	4.5	5'-10"	119	1.7	
48"	21'- 1 3/4"	6'- 1 1/2"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3	
54"	23'- 5 1/2"	6'- 8 1/2"	15'- 6"	17'-10 3/4"	618	7.3	7'- 6"	186	2.9	
60"	25'- 9 1/4"	7'- 3 1/2"	17'- 0"	19'- 7 1/2"	707	8.7	8'- 3"	219	3.4	
66"	28'- 1"	7'-10 1/2"	18'- 6"	21'- 4 1/4"	797	10.1	8'- 9"	242	3.9	
72"	30'- 4 3/4"	8'- 5 1/2"	20'- 0"	23'- 1 1/4"	910	11.7	9'- 4"	272	4.4	
12"	7'-10 3/4"	2'- 6"	5'- 8"	6'- 6 1/2"	144	1.1	1'- 9"	24	0.3	
15"	9'- 4"	2'- 9 1/2"	6'- 8"	7'- 8 1/2"	177	1.5	2'- 2"	32	0.4	
18"	10'- 9 1/2"	3'- 1"	7'- 8"	8'-10 1/4"	217	1.9	2'- 8"	42	0.5	
21"	12'- 2 3/4"	3'- 4 1/2"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7	
24"	13'- 9 1/2"	3'- 9 1/2"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9	
27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 3/4"	328	3.3	3'-11"	77	1.0	
30"	16'- 8 1/4"	4'- 4 1/2"	11'- 8"	13'- 5 3/4"	379	3.8	4'- 4"	89	1.3	
33"	18'- 1 3/4"	4'- 8"	12'- 8"	14'- 7 1/2"	417	4.5	4'- 8"	101	1.4	
36"	19'- 7"	4'-11 1/2"	13'- 8"	15'- 9 1/4"	464	5.1	5'- 1"	115	1.7	
42"	22'- 5 3/4"	5'- 6 1/2"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1	
48"	26'- 6 1/4"	6'- 1 1/2"	18'- 8"	21'- 6 3/4"	720	8.9	6'- 7"	175	2.8	
54"	29'- 5"	6'- 8 1/2"	20'- 8"	23'-10 1/4"	863	10.7	7'- 6"	226	3.6	
60"	32'- 3 3/4"	7'- 3 1/2"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3	
66"	35'- 2 1/2"	7'-10 1/2"	24'- 8"	28'- 5 3/4"	1126	14.9	8'- 9"	300	4.9	
72"	38'- 1 1/4"	8'- 5 1/2"	26'- 8"	30'- 9 1/2"	1283	17.3	9'- 4"	334	5.6	
12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 3/4"	220	1.9	1'- 9"	28	0.4	
15"	13'- 2 1/4"	2'- 9 1/2"	10'- 0"	11'- 6 1/2"	264	2.5	2'- 2"	37	0.5	
18"	15'- 2 1/2"	3'- 1"	11'- 6"	13'- 3 1/4"	326	3.2	2'- 8"	50	0.7	
21"	17'- 2 3/4"	3'- 4 1/2"	13'- 0"	15'- 0 1/4"	381	3.9	3'- 1"	69	0.9	
24"	19'- 4 1/2"	3'- 9 1/2"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2	
27"	21'- 4 3/4"	4'- 1"	16'- 0"	18'- 5 3/4"	506	5.7	3'-11"	96	1.4	
30"	23'- 5 1/4"	4'- 4 1/2"	17'- 6"	20'- 2 1/2"	587	6.7	4'- 4"	110	1.7	
33"	25'- 5 1/2"	4'- 8"	19'- 0"	21'-11 1/4"	667	7.8	4'- 8"	127	2.0	
36"	27'- 5 3/4"	4'-11 1/2"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3	
42"	31'- 6 1/4"	5'- 6 1/2"	23'- 6"	27'- 1 1/2"	914	11.5	5'-10"	179	3.0	
48"	37'- 3 1/2"	6'- 1 1/2"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0	
54"	41'- 4 1/4"	6'- 8 1/2"	31'- 0"	35'- 9 1/2"	1412	19.2	7'- 6"	300	5.0	
60"	45'- 4 3/4"	7'- 3 1/2"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0	



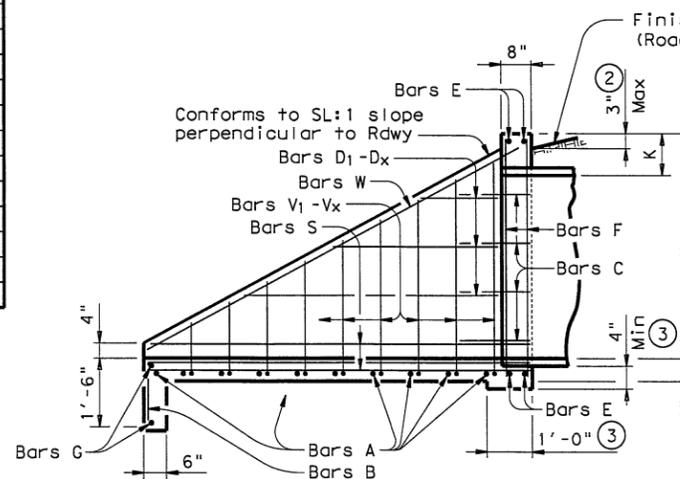
ELEVATION

Showing dimensions

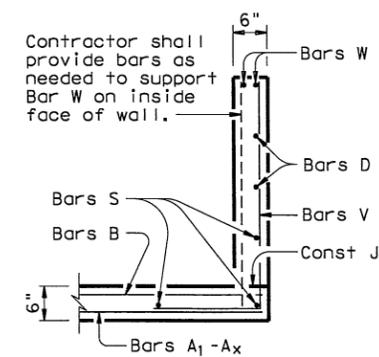
- Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
- For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.
- Quantities shown are for one structure end only (one headwall).
- Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right)$
Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L} \right) - 1"$
- Lengths of wings based on SL:1 Slope along this line.



PLAN



TYPICAL WING ELEVATION



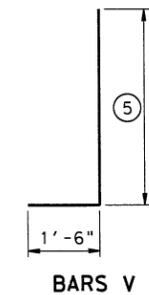
SECTION A-A

TABLE OF REINFORCING STEEL (4)

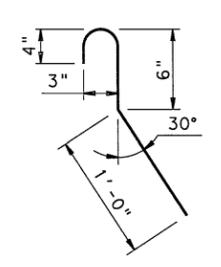
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

TABLE OF CONSTANT DIMENSIONS

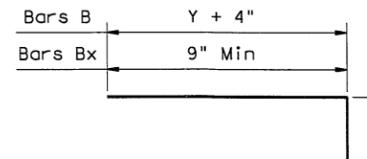
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



BARS V



BARS C
(2'-0" long)



BARS B & B1-Bx

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.
Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.
No bridge rails of any type may be mounted directly to these culvert headwalls.

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: FILE:

Texas Department of Transportation Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS CH-FW-0

FILE: chfw00se.dgn
©TxDOT February 2010
REVISIONS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS & SURVEYORS
TEXAS REGISTERED ENGINEERING FIRM F-334
2500 BROOK AVENUE WICHITA FALLS, TX 76701 V: (840) 766-0158 F: (840) 766-3383

DN	TT	DATE:	APRIL 2017	SHEET
DW	NG	SCALE:	N.T.S.	611
CHK	TT	DWG.	2017	39 OF 42

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

- CITY OF WICHITA FALLS
DREW BEGLEY - ENVIRONMENTAL COORDINATOR
1300 7TH STREET - WICHITA FALLS, TEXAS
- DREW.BEGLEY@WICHITAFALLS.TX.GOV

No Action Required Required Action

Action No.

- Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
- Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
- Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
- When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

- NONE
-
-
-

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input checked="" type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input checked="" type="checkbox"/> Blankets/Matting	<input checked="" type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input checked="" type="checkbox"/> Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

No Action Required Required Action

Action No.

-
-
-
-

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 192, 193, 506, 730, 751, 752 of the 2004 TxDOT Standard Specifications in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

No Action Required Required Action

Action No.

- IMPACTS TO VEGETATION SHOULD BE KEPT TO THE MINIMUM NECESSARY.
- TREES SHALL BE TRIMMED RATHER THAN REMOVED WHEN FEASIBLE.
-
-

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

No Action Required Required Action

1. MIGRATORY BIRD TREATY ACT: MIGRATORY BIRDS MAY ARRIVE IN THE PROJECT AREA TO BREED DURING CONSTRUCTION OF THE PROPOSED PROJECT. MEASURES WOULD BE TAKEN TO AVOID THE TAKE OF MIGRATORY BIRDS, THEIR OCCUPIED NESTS, EGGS, OR YOUNG. IN ACCORDANCE WITH THE MIGRATORY BIRD TREATY ACT, THROUGH PHASING OF WORK OR PREVENTATIVE MEASURES. BETWEEN OCTOBER 1 AND FEBRUARY 15, THE CONTRACTOR WOULD REMOVE ALL OLD MIGRATORY BIRD NESTS FROM ANY STRUCTURES THAT WOULD BE AFFECTED BY THE PROPOSED PROJECT, AND COMPLETE ANY BRIDGE WORK/DEMOLITION AND/OR VEGETATION CLEARING. IN ADDITION, THE CONTRACTOR WOULD BE PREPARED TO PREVENT MIGRATORY BIRDS FROM BUILDING NESTS BY UTILIZING NEST PREVENTION METHODS, SUCH AS BIRD-DETERRENT NETTING AND BIRD-REPELLING SPRAYS AND/OR GELS. BETWEEN FEBRUARY 15 AND OCTOBER 1, IN THE EVENT THAT MIGRATORY BIRDS ARE ENCOUNTERED ON-SITE DURING PROJECT CONSTRUCTION, ADVERSE IMPACTS ON PROTECTED BIRDS, ACTIVE NESTS, EGGS, AND/OR YOUNG WOULD BE AVOIDED.

2. WESTERN BURROWING OWL - IN ADDITION TO COMPLYING WITH THE MIGRATORY BIRD TREATY ACT (MBTA) PERFORM THE FOLLOWING BMPs: PRIOR TO CONSTRUCTION, PERFORM DAYTIME SURVEYS FOR NESTS INCLUDING UNDER BRIDGES AND IN CULVERTS TO DETERMINE IF THEY ARE ACTIVE BEFORE REMOVAL. NESTS THAT ARE ACTIVE SHOULD NOT BE DISTURBED. DO NOT DISTURB, DESTROY, OR REMOVE ACTIVE NESTS, INCLUDING GROUND NESTING BIRDS, DURING THE NESTING SEASON. AVOID THE REMOVAL OF UNOCCUPIED, INACTIVE NESTS, AS PRACTICABLE. PREVENT THE ESTABLISHMENT OF ACTIVE NESTS DURING THE NESTING SEASON ON TxDOT OWNED AND OPERATED FACILITIES AND STRUCTURES PROPOSED FOR REPLACEMENT OR REPAIR. DO NOT COLLECT, CAPTURE, RELOCATE, OR TRANSPORT BIRDS, EGGS, YOUNG, OR ACTIVE NESTS WITHOUT A PERMIT.

2. EASTERN SPOTTED & PLAINS SPOTTED SKUNK: THIS SPECIES HAS THE POTENTIAL TO OCCUR IN THE PROJECT AREA. AVOID HARMING THE SPECIES IF ENCOUNTERED AND AVOID UNNECESSARY IMPACTS TO DENS.

3. TEXAS KANGAROO RAT: SURVEY POTENTIALLY DISTURBED AREAS FOR TKR HABITAT PRIOR TO CONSTRUCTION. IF TKR HABITAT IS OBSERVED IN THE AREA, DISTURBANCE OF THIS HABITAT SHOULD BE AVOIDED TO THE EXTENT FEASIBLE. IF AVOIDANCE OF SUITABLE HABITAT IS NOT POSSIBLE SURVEY THE HABITAT FOR TKR BURROWS TO DETERMINE IF THE SITE IS OCCUPIED BY THIS SPECIES. INDIVIDUAL TKRS ON THE PROJECT SITE SHOULD BE ALLOWED TO SAFELY LEAVE THE PROJECT SITE OR BE RELOCATED BY A PERMITTED INDIVIDUAL TO AN AREA THAT WOULD NOT BE DISTURBED BY CONSTRUCTION. MONITOR THE LISTING STATUS OF THE TKR THROUGHOUT CONSTRUCTION. CONSULTATION, PERMITTING, AND MITIGATION MAY BE REQUIRED IF THIS SPECIES BECOMES LISTED UNDER THE ESA.

4. TEXAS HORNED LIZARD: (1) AVOID HARVESTER ANT MOUNDS IN THE SELECTION OF THE PROJECT SPECIFIC LOCATION (PSLS). (2) APPLY HYDRO-MULCHING AND/OR HYDRO-SEEDING IN AREAS FOR SOIL STABILIZATION AND/OR RE-VEGETATION OF DISTURBED AREAS WHERE FEASIBLE. IF HYDRO-MULCHING AND/OR HYDRO-SEEDING ARE NOT FEASIBLE DUE TO SITE CONDITIONS, UTILIZE EROSION CONTROL BLANKETS OR MATS THAT CONTAIN NO NETTING OR CONTAIN LOOSELY WOVEN, NATURAL FIBER NETTING IS PREFERRED. PLASTIC NETTING SHOULD BE AVOIDED TO THE EXTENT PRACTICABLE. (3) FOR OPEN TRENCHES AND EXCAVATED PITS, INSTALL ESCAPE RAMPS AT AN ANGLE OF LESS THAN 45 DEGREES (1:1) IN AREAS LEFT UNCOVERED. VISUALLY INSPECT EXCAVATION AREAS FOR TRAPPED WILDLIFE PRIOR TO BACKFILLING. (4) INFORM CONTRACTORS THAT IF REPTILES ARE FOUND ON PROJECT SITE ALLOW SPECIES TO SAFELY LEAVE THE PROJECT AREA. (5) AVOID OR MINIMIZE DISTURBING OR REMOVING DOWNED TREES, ROTTING STUMPS, AND LEAF LITTER WHERE FEASIBLE. (6) CONTRACTORS WILL BE ADVISED OF POTENTIAL OCCURRENCE IN THE PROJECT AREA, AND TO AVOID HARMING THE SPECIES IF ENCOUNTERED.

5. CAVE MYOTIS BAT: IF BATS ARE PRESENT OR RECENT SIGNS OF OCCUPATION (I.E., PILES OF GUANO, DISTINCT MUSKY ODOR, OR STAINING AND RUB MARKS AT POTENTIAL ENTRY POINTS) ARE OBSERVED, TAKE APPROPRIATE MEASURES TO ENSURE THAT BATS ARE NOT HARMED, SUCH AS IMPLEMENTING NONLETHAL EXCLUSION ACTIVITIES OR TIMING OR PHASING OF CONSTRUCTION. LARGE HOLLOW TREES, SNAGS (DEAD STANDING TREES), AND TREES WITH SHAGGY BARK SHOULD BE SURVEYED FOR COLONIES AND, IF FOUND, SHOULD NOT BE DISTURBED UNTIL THE BATS ARE NO LONGER OCCUPYING THESE FEATURES. POST-OCCUPANCY SURVEYS SHOULD BE CONDUCTED BY A QUALIFIED BIOLOGIST PRIOR TO TREE REMOVAL FROM THE LANDSCAPE. RETAIN MATURE, LARGE DIAMETER HARDWOOD FOREST SPECIES AND NATIVE/ORNAMENTAL PALM TREES WHERE FEASIBLE. IN ALL INSTANCES, AVOID HARM OR DEATH TO BATS. BATS SHOULD ONLY BE HANDLED AS A LAST RESORT AND AFTER COMMUNICATION WITH TPWD.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- Dead or distressed vegetation (not identified as normal)
- Trash piles, drums, canister, barrels, etc.
- Undesirable smells or odors
- Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

Yes No

If "No", then no further action is required.

If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

Yes No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

No Action Required Required Action

Action No.

- CONCRETE WASHOUTS SHALL COMPLY WITH THE CGP. STRUCTURAL CONTROLS MUST BE MAINTAINED AND CLEANED TO PREVENT OVERFLOW.
- IF SHEEN OR OTHER CONTAMINATION IS VISIBLE IN THE WATERS OF THE U.S. OR ON THE PROJECT SITE, THE SITE SHALL BE CLEANED UP IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
-

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

No Action Required Required Action

Action No.

- KEEP NOISE TO A MINIMUM. REDUCE IDLING OF VEHICLES AND EQUIPMENT.
- MAINTAIN PROJECT SITE. MINIMIZE DUST AND AIRBORNE PARTICLES TO THE MAXIMUM EXTENT PRACTICAL.
- COLLECT SANITARY WASTE IN ACCORDANCE WITH LOCAL REGULATIONS BY SANITARY WASTE COLLECTOR. PORTABLE UNITS SHALL NOT BE PLACED IN OR NEAR A WATERWAY OR DRAINAGE AREA.

			
<p>ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS</p> <p>EPIC</p>			
FILE: epic.dgn © TxDOT: February 2015 REVISIONS 12-12-2011 051 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.		 BIGGS & MATHEWS, INC. CONSULTING ENGINEERS / SURVEYORS TEXAS REGISTERED ENGINEERING FIRM F-834 2500 BROOK AVENUE WICHITA FALLS, TX 76301 V: (940) 766-0156 F: (940) 766-3383	
DNL TT DW NG CHK TT	DATE: FEBRUARY 2015 SCALE: N.T.S. DWG: 01-23-2015	SHEET 612 40 OF 42	

SITE DESCRIPTION

PROJECT LIMITS: LOOP 11 TO LUCY PARK

PROJECT SITE MAPS: PROJECT LOCATION MAP: SEE SHEET 003
 APPROXIMATE SLOPES ANTICIPATED AFTER MAJOR GRADING: SEE SHEETS 101 - 102
 AREAS OF SOIL DISTURBANCES: SEE SHEETS 501 - 503

PROJECT DESCRIPTION: HIKE AND BIKE TRAIL FROM WICHITA BLUFFS TO LOOP 11

MAJOR SOIL DISTURBING ACTIVITIES: PREPARATION OF ROW, EXCAVATION AND/OR FILL FOR CONSTRUCTION OF DRAINAGE IMPROVEMENTS, RETAINING WALLS AND PAVEMENTS.

TOTAL PROJECT AREA: 12.7 ACRES

TOTAL AREA TO BE DISTURBED: 3.7 ACRES (29.1%)

WEIGHTED RUNOFF COEFFICIENT: BEFORE CONSTRUCTION: 0.5
 AFTER CONSTRUCTION: 0.4

EXISTING CONDITION OF SOIL & VEGETATIVE: PROJECT LOCATION IS LATON-URBAN LAND COMPLEX, 5 TO 20 PERCENT SLOPES, WESTOLA AND YOMONT SOILS, FREQUENTLY FLOODED AND CLAIREMONT-URBAN LAND COMPLEX WITHIN THE CITY OF WICHITA FALLS. THE AMOUNT OF VEGETATIVE COVER IS MORE THAN 80% OF THE TOTAL. EXISTING VEGETATION COVER PRIMARILY CONSISTS OF VARIOUS GRASSES AND TREES.

NAME OF RECEIVING WATERS: RECEIVING WATERS ARE STREAM SEGMENT 0214 OF THE WICHITA RIVER BELOW DIVERSION LAKE.

ENDANGERED SPECIES, DESIGNATED CRITICAL HABITAT AND HISTORICAL PROPERTY: NO ENDANGERED SPECIES, DESIGNATED CRITICAL HABITAT OR HISTORIC PROPERTY HAS BEEN FOUND ON THIS PROJECT SITE.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- TEMPORARY SEEDING
- MULCHING (Hay or Straw)
- BUFFER ZONES
- PLANTING
- SEEDING
- SODDING
- BIODEGRADABLE EROSION CONTROL SOCKS
- PRESERVATION OF NATURAL RESOURCES
- FLEXIBLE CHANNEL LINER
- RIGID CHANNEL LINER
- SOIL RETENTION BLANKET
- COMPOST MANUFACTURED COMPOST
- OTHER: (Specify Practice)

STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- SILT FENCES
- BIODEGRADABLE EROSION CONTROL SOCKS
- HAY BALES
- ROCK FILTER DAMS
- 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
- PIPE MATTING OR EQUAL AT CONSTRUCTION EXIT
- CHANNEL LINERS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STORM INLET SEDIMENT TRAP
- STONE OUTLET STRUCTURES
- CURBS AND GUTTERS
- STORM SEWERS
- VELOCITY CONTROL DEVICES
- OTHER: (Specify Practice)

STORM WATER MANAGEMENT: STORM WATER DRAINAGE WILL BE PROVIDED BY A DRAINAGE SYSTEM INCLUDING STORM SEWER AND OPEN CHANNELS. THIS STORM DRAINAGE SYSTEM WILL CARRY RUN-OFF ALONG THE TRAIL TO LOW POINTS WHERE IT CROSSES UNDERNEATH AND IS ULTIMATELY ROUTED TO DESIGNATED OUTFALLS ALONG THE WICHITA RIVER.

- STORM WATER MANAGEMENT ACTIVITIES:
1. INSTALL EROSION CONTROL DEVICES WHERE PRACTICAL
 2. PREP ROW AND EXCAVATION
 3. CONSTRUCT DRAINAGE FEATURES
 4. CONSTRUCT RETAINING WALLS
 5. CONSTRUCT SIDEWALKS
 6. BACKFILL PAVEMENT EDGES

NON-STORM WATER MANAGEMENT DISCHARGES: NOT APPLICABLE

OTHER REQUIREMENTS & PRACTICES

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: A construction inspector will perform a regularly scheduled SW3P inspection every 7 calendar days. An Inspection and Maintenance Report, signed by the Inspector and the Contractor, will be filed for each inspection within 24-hours following the inspection. Revise/clean/repair/replace each BMP control device in accordance with the Construction General Permit and the current Field Inspection and Maintenance Report and Item I (Maintenance) above.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded dumpster. All trash and construction debris from the site will be deposited as necessary at a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories 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 spill coordinator should be contacted immediately. Emptying of excess concrete should not be allowed on site. Likewise, washout of concrete trucks should not be performed on site. These discharges are considered non-allowable non-storm water discharges. Concrete trucks should never be allowed to dump into storm drains or sanitary sewers.

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.

OFFSITE VEHICLE TRACKING: The Contractor shall be required, on a regular basis or as may be directed by the Engineer, to dampen haul roads for dust control, stabilize construction entrances and to remove excess dirt from the roadway.

- MANAGEMENT PRACTICES:
1. 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 wet land, water body or stream bed.
 2. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.
 3. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, or debris or other obstructions placed during construction operations that are not a part of the finished work.

- OTHER:
1. Construction Materials List of materials stored on job site to be provided by Contractor.
 2. The project SW3P File shall be located at the project field office or within the Contractor's mobile office at all times and shall contain the N.O.I., CGP, Signature Authorization, Certification/Qualification Statements, Inspection Reports, Required Maps, and the TPDES Permit, Part II. This File to be presented to authorized State and Federal Agents upon request.



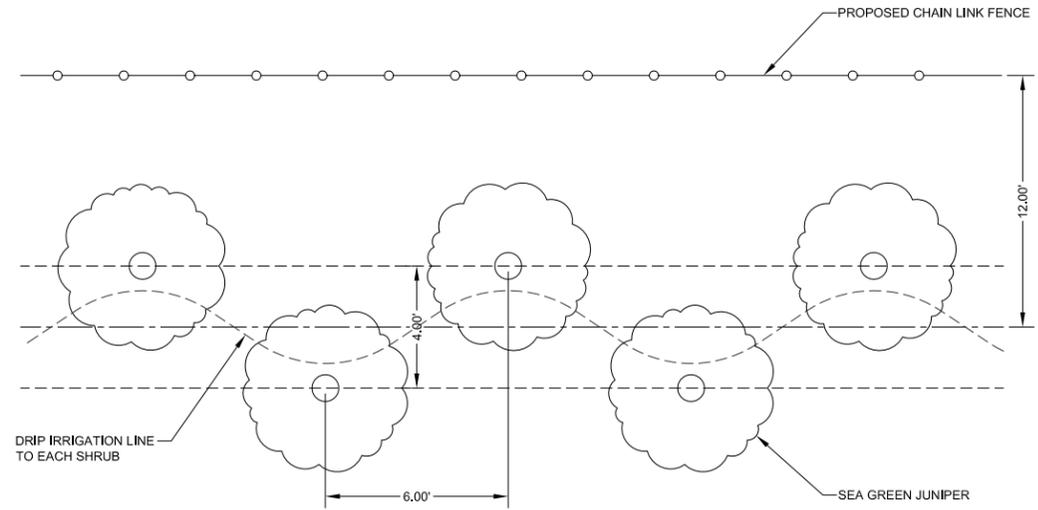
Signature of Registrant & Date

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 Texas Department of Transportation
 TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

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 V: (940) 766-0156 F: (940) 766-3383

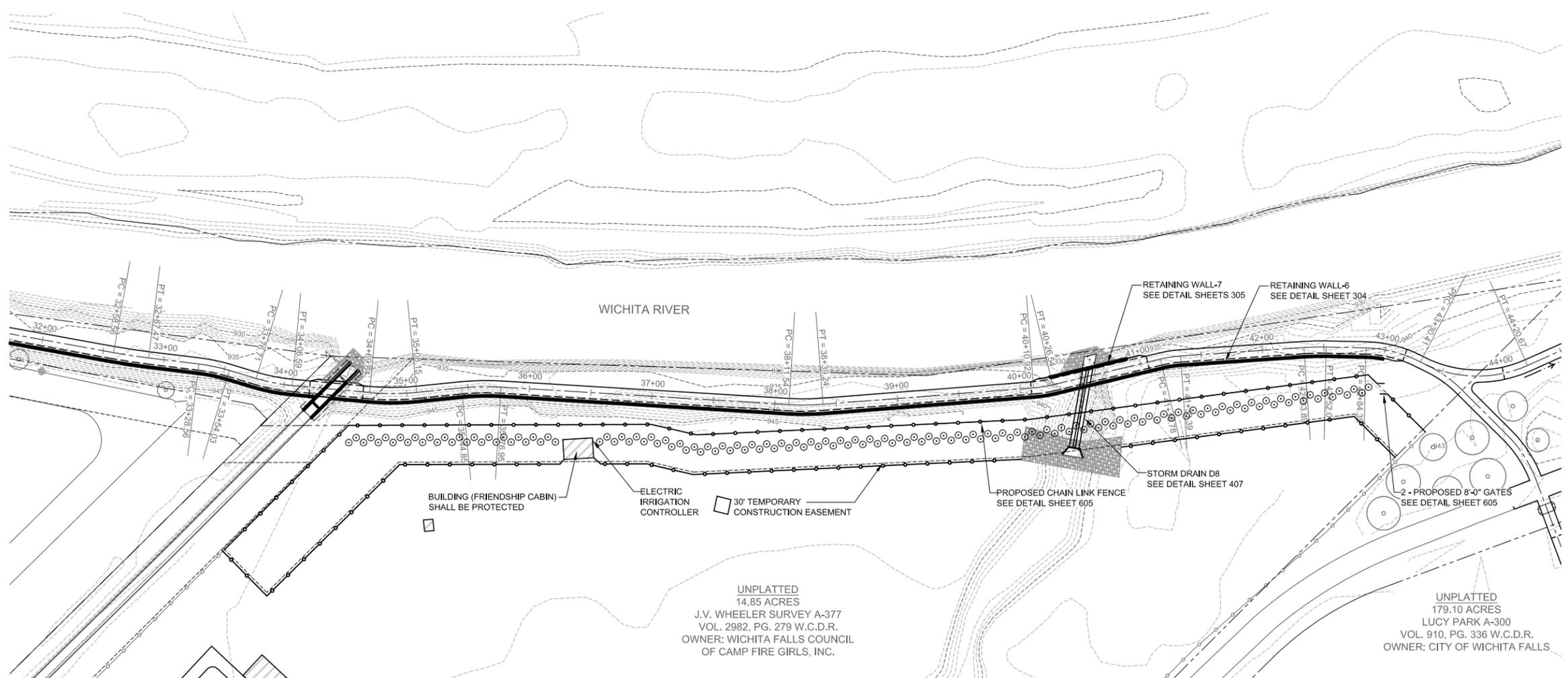
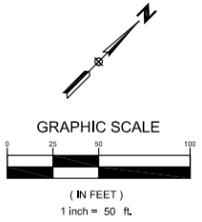
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CHK: TT	DWG.: 41-819-000-03-04	41 OF 42

DWG: F:\03_Projects\2012\2012-057\Cldwg\42 C-701 LANDSCAPE PLAN.dwg USER: ngamm
 DATE: Apr 24, 2017 10:10pm XREFS: GBS BASE CONTOURS



TYPICAL LANDSCAPE DETAIL

SCALE : N.T.S.



WICHITA RIVER

RETAINING WALL-7
SEE DETAIL SHEETS 305

RETAINING WALL-6
SEE DETAIL SHEET 304

BUILDING (FRIENDSHIP CABIN)
SHALL BE PROTECTED

ELECTRIC IRRIGATION CONTROLLER

30' TEMPORARY CONSTRUCTION EASEMENT

PROPOSED CHAIN LINK FENCE
SEE DETAIL SHEET 605

STORM DRAIN D8
SEE DETAIL SHEET 407

2 - PROPOSED 8'-0" GATES
SEE DETAIL SHEET 605

UNPLATTED
14.85 ACRES
J.V. WHEELER SURVEY A-377
VOL. 2982, PG. 279 W.C.D.R.
OWNER: WICHITA FALLS COUNCIL
OF CAMP FIRE GIRLS, INC.

UNPLATTED
179.10 ACRES
LUCY PARK A-300
VOL. 910, PG. 336 W.C.D.R.
OWNER: CITY OF WICHITA FALLS

GENERAL NOTES:

1. NO CONSTRUCTION ACTIVITIES SHALL OCCUR ON THE CAMP FIRE TRACT IN THE MONTH OF JUNE.
2. CONTRACTOR SHALL INSTALL A DRIP IRRIGATION SYSTEM FOR SHRUBS WITH AN ELECTRICAL IRRIGATION CONTROLLER LOCATED AT THE FRIENDSHIP CABIN.
3. ALL SHRUBS SHALL BE PARK QUALITY SEA GREEN JUNIPER OF 10 GALLON SIZE.
4. THE WATER SUPPLY TO THE IRRIGATION SYSTEM SHALL BE SUPPLIED BY OTHERS.
5. THE DRIP IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED BY A LICENSED IRRIGATOR AND AN IRRIGATION PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

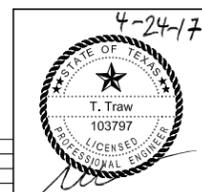
LANDSCAPE PLAN

SCALE: H 1" = 50'

LANDSCAPE PLAN

HIKE & BIKE TRAIL
FROM LOOP 11 TO LUCY PARK

WICHITA FALLS, TEXAS



BIGGS & MATHEWS, INC.
 CONSULTING ENGINEERS / SURVEYORS
 TEXAS REGISTERED ENGINEERING FIRM F-834
 2500 BROOK AVENUE V: (940) 766-0156
 WICHITA FALLS, TX 76301 F: (940) 766-3383

DN. TT	DATE: APRIL 2017	SHEET
DW. NG	SCALE: 1" = 50'	701
CHK. TT	DWG.: 42 c-701 landscape plan.dwg	42 OF 42

REVISION	DATE	DESCRIPTION