CITY OF SAN ANGELO, TEXAS
TOM GREEN COUNTY, TEXAS

PROJECT NO. 2016-10-292
PLANS OF PROPOSED
NORTH MONROE REHABILITAION
AT BRENTWOOD PARK
100% SUBMITTAL
FEBRUARY, 2018

SHEET	DESCRIPTION
C-000	COVER SHEET
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C-002	BENCHMARK SHEET
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C-200	PROFILE VIEW
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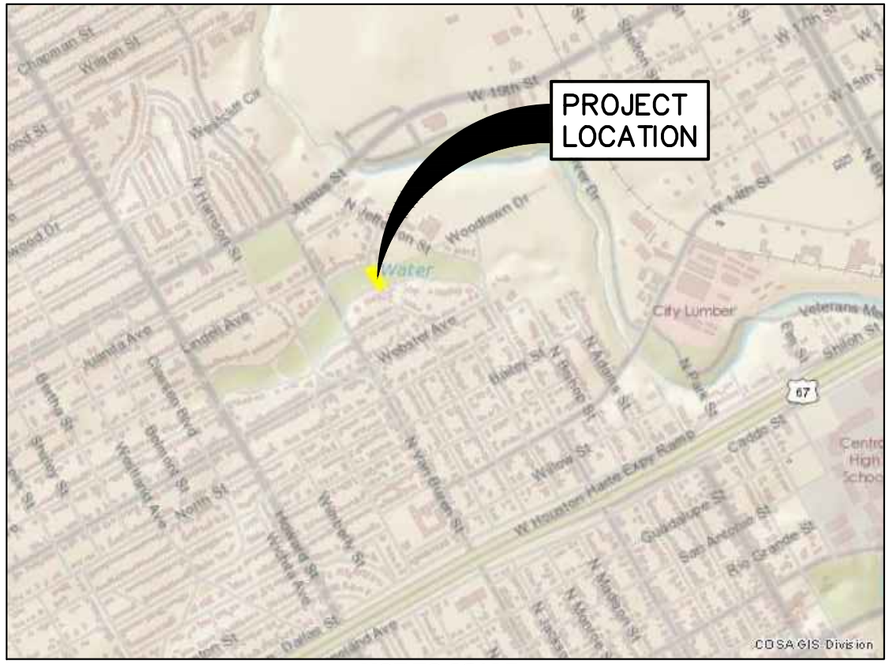
C-401	STANDARD CONSTRUCTION DETAILS
C-500	TRAFFIC CONTROL PLAN
C-501	TRAFFIC CONTROL PLAN
C-502	TRAFFIC CONTROL PLAN



NOT TO SCALE

CITY MANAGER: DANIEL VALENZUELA
MAYOR: BRENDA GUNTER

COUNCIL MEMBERS:

SMD1 – TOMMY HIEBERT	SMD4 – LUCY GONZALES
SMD2 – TOM THOMPSON	SMD5 – LANE CARTER
SMD3 – HARRY THOMAS	SMD6 – BILLIE DEWITT

PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION
CITY ENGINEER: RUSSELL PEHL, P.E.

CITY OF SAN ANGELO
ENGINEERING SERVICES
CITY HALL ANNEX
301 W. BEAUREGARD AVE.
SAN ANGELO, TX. 76903
(325)657-4201
www.cosatx.us

THE CITY OF SAN ANGELO TEXAS

NO	DESCRIPTION	DATE

STATE OF TEXAS
RICKY L. OVERSTREET
121782
REGISTERED PROFESSIONAL ENGINEER

The Seal appearing on this document was authorized by Ricky L. Overstreet, P.E. 121782 on: February 20, 2018

ES-X-XX
COVER SHEET
NORTH MONROE REHABILITATION
AT BRENTWOOD PARK
PROJECT NO: 2016-10-292
DESIGN BY: A.V.
DRAWN BY: M.P.

SCALE: NTS
DATE: 02/2018
ARCHIVE NO: #-#####
SHEET NO. C-000
1 OF 12

GENERAL CONSTRUCTION NOTES

1. THE OWNER WILL DESIGNATE LOCATIONS ALONG THE PROJECT ROUTE FOR CONTRACTOR'S USE IN STORAGE AND STAGING EQUIPMENT AND MATERIALS.
2. THE CONTRACTOR IS RESPONSIBLE FOR REDIRECTING ANY NATURAL GROUND WATER AND STORM WATER THAT MAY BE PRESENT IN THE DRAINAGE DITCH.
3. CONTRACTOR SHALL NOT STORE MATERIALS OR EQUIPMENT OR PLACE EXCESS EXCAVATED MATERIAL ON PRIVATE PROPERTY WITHOUT PRIOR WRITTEN AGREEMENT WITH THE PROPERTY OWNER.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING GENERAL SAFETY AT AND ADJACENT TO THE PROJECT AREA, INCLUDING THE PERSONAL SAFETY OF THE CONSTRUCTION CREW AND GENERAL PUBLIC, AND THE SAFETY OF PUBLIC AND PRIVATE PROPERTY.
5. THE TYPES AND LOCATIONS OF THE TEMPORARY BARRICADES AND SIGNS USED DURING CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PLACEMENT AND MAINTENANCE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR WITH APPROVED TRAFFIC CONTROL PLAN.
6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE CONSTRUCTION PLANS AND/OR PROJECT SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING, SEEDING OR HYDROMULCH AS INDICATED IN THE PLANS AND SPECS. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION BEGAN.
7. THE CONTRACTOR SHALL REMOVE FROM THE PROJECT AREA ALL SURPLUS MATERIAL. THIS SHALL BE INCIDENTAL AND NOT A SEPARATE PAY ITEM. SURPLUS MATERIALS FROM EXCAVATION INCLUDING DIRT, TRASH, ETC. SHALL BE PROPERLY DISPOSED OF AT A SITE ACCEPTABLE TO THE CITY'S FLOOD PLAIN ADMINISTRATOR IF WITHIN THE CITY LIMITS. IF THE LOCATION IS NOT WITHIN THE CITY LIMITS, THE CONTRACTOR SHALL PROVIDE A LETTER STATING SO. NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGEWAY WITHOUT WRITTEN PERMISSION FROM THE AFFECTED PROPERTY OWNER AND THE CITY'S FLOOD PLAIN ADMINISTRATOR. IF THE CONTRACTOR PLACES EXCESS MATERIAL IN THE AREAS WITHOUT WRITTEN PERMISSION, HE WILL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL AND HE SHALL REMOVE THE MATERIAL AT HIS OWN COST.
8. ALL EXISTING CONCRETE AND ASPHALT ROADWAYS ARE TO BE SAWCUT WHEN CONSTRUCTING A NEW CONCRETE ROADWAY.
9. THE CONTRACTOR SHALL USE EXTREME CAUTION IN LOCATING AND PROTECTING EXISTING UTILITY MAINS AND SERVICES.
10. ALL EXCAVATIONS, TRENCHING AND SHORING OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE U.S. DEPARTMENT OF LABOR, OSHA, "CONST. SAFETY AND HEALTH REGULATIONS", VOL. 29, SUBPART P., PG 128-137, AND ANY AMENDMENTS THERETO.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXCESS TRENCH EXCAVATIONS AND HAULING MATERIALS TO AN APPROVED DISPOSAL SITE. NO SEPARATE PAY WILL BE ALLOWED.
12. CONTRACTOR'S PERSONNEL SHALL HAVE IDENTIFYING CLOTHING, HATS, OR BADGES AT ALL TIMES WHICH IDENTIFY THE CONTRACTOR'S NAME, LOGO, OR COMPANY.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS BEFORE CONSTRUCTION BEGINS.
14. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT ELECTRIC POWER AND TELEPHONE POLES ARE NOT DISTURBED DURING CONSTRUCTION. ALL COSTS INCURRED FOR SUPPORTING ELECTRIC POWER AND TELEPHONE POLES SHALL BE INCLUDED IN THE BID PRICE FOR CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN NEAT AND ACCURATE PLANS ON RECORD.
16. UNLESS SPECIFICALLY STATED ON DRAWING, THE CONTRACTOR SHALL NOT REMOVE, CUT, OR DAMAGE TREES OR LIMBS WITHOUT WRITTEN APPROVAL OF THE CITY.
17. CONTRACTOR IS RESPONSIBLE FOR SUCCESSFULLY ESTABLISHING TURF (SOD) IN THE ENTIRE PROJECT LIMITS.
18. THE DOWNSTREAM POND MAY REQUIRE PUMPING TO LOWER THE WATER LEVEL FOR CONSTRUCTION. CONTRACTOR SHALL COORDINATE ACCORDINGLY WITH CITY AND IS RESPONSIBLE FOR LOWERING THE WATER LEVEL IN THE POND,WHILE MAINTAINING ADEQUATE CONDITIONS FOR EXISTING AQUATIC LIFE.
19. ALL SURVEY DATUM BASED ON NAD83 FOR NORTHING AND EASTING AND NAVD88 FOR VERTICAL.

EROSION & SEDIMENTATION CONTROL NOTES

1. CONTRACTOR WILL BE RESPONSIBLE FOR COMPLYING WITH TCEQ'S TPDES AND EPA'S NPDES PROGRAMS FOR CONTROL OF SILT AND EROSION. CONTRACTOR SHALL PREPARE A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL UPDATE THE SWPPP AS NECESSARY BASED ON FIELD CONDITIONS.
2. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES. THEY SHALL REMAIN IN PLACE AND FUNCTIONAL UNTIL AFTER THE PROPOSED IMPROVEMENTS ARE IN PLACE.
3. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND SIDEWALKS ADJACENT TO THE PROJECT FREE OF MUD AND DEBRIS FROM CONSTRUCTION AT ALL TIMES.
4. THE SITE SHALL BE REVIEWED WEEKLY AND AFTER ANY MAJOR STORM ADJUSTMENTS/REPAIRS TO THE EROSION CONTROL DEVICES SHALL BE MADE AS DIRECTED BY THE CITY.
5. THE EROSION CONTROL PLANS PROVIDED IN THE PLAN SET DOES NOT RELIEVE THE CONTRACTOR FROM PROVIDING ADDITIONAL EROSION CONTROL MEASURES AS REQUIRED BY THE SWPPP OR AS REQUIRED BY FIELD CONDITIONS AND DIRECTED BY THE CITY. THE EROSION CONTROL PLANS ARE PROVIDED AS A COURTESY TO THE CONTRACTOR. HOWEVER, IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET ALL REGULATORY REQUIREMENTS FOR EROSION CONTROL.
6. THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING, IMPLEMENTATION, AND MAINTENANCE OF THE SWPPP. THE INSPECTION AND MAINTENANCE OF THE EROSION PREVENTION MEASURES SHALL BE THE CONTRACTOR'S RESPONSIBILITY THROUGHOUT ALL PHASES OF CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH TCEQ'S TPDES AND THE EPA'S NPDES (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM) REGULATIONS 40-CFR-122, 123, 124 CONCERNING EROSION AND SEDIMENT CONTROL. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUBMITTING A NOTICE OF INTENT "NOI" TO EPA 72 HOURS PRIOR TO BEGINNING CONSTRUCTION AND NOTICE OF TERMINATION "NOT" TO EPA UPON COMPLETION OF THE PROJECT.
7. EXCAVATE ACCUMULATED SEDIMENT WITH BACKHOE, TRACK HOE, OR BUCKET-TYPE EXCAVATING APPARATUS ONLY. DO NOT USE A BULLDOZER OR OTHER MOVING EQUIPMENT TO PUSH MATERIAL OUT OF STREAMBED; EXCAVATE WITH NO MORE THAN INCIDENTAL FALLBACK (I.E. SMALL SPILLS FROM THE EXCAVATION APPARATUS). EXCAVATE BETWEEN ORDINARY HIGH WATER MARKS (OHWMs), AS MAPPED, FROM THE TOP OF THE STREAM BANK ONLY. PLACE SEDIMENT DIRECTLY INTO A TRUCK OR CONTAINER AND REMOVE FOR DISPOSAL AT AN UPLAND SITE. DO NOT ALLOW EXCAVATED MATERIAL TO DEWATER INTO THE STREAM OR ANY OTHER WATER BODY.

TRAFFIC CONTROL

1. THE CONTRACTOR SHALL SUBMIT A WORK SCHEDULE AND TRAFFIC CONTROL PLAN.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SIGNAGE NECESSARY DURING CONSTRUCTION.
3. ALL SIGNS, BARRICADES, PAVEMENT MARKINGS, AND TRAFFIC CONTROL DEVICES, INCLUDING PLACEMENT, SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. ALL TRAFFIC CONTROL DEVICES USED AT NIGHT SHALL BE REFLECTORIZED AND/OR ILLUMINATED. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT BATTERIES IN ILLUMINATED DEVICES ARE CHARGED SUCH THAT NO DEVICE FAILS TO OPERATE DURING THE NIGHT.
5. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN BARRICADES, WARNING SIGNS, FLASHERS, AND OTHER DEVICES OF THE TYPE AND SIZE INDICATED IN THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT REVISION.

ROAD AND CULVERT CONSTRUCTION NOTES

1. ALL REBAR SHALL BE #4 BARS AT 18" O.C.E.W.,UNLESS OTHERWISE SHOWN ON THE PLANS OR IN CONFLICT WITH CULVERT PIPE.
2. LAP SPLICE MINIMUM LENGTH OF 18" FOR ALL REBAR WITH 2 STRAND TIE WIRE FOR ALL JOINTS.
3. CONCRETE SHALL BE TYPE P FOR ROAD SURFACE AND TYPE C FOR HEADWALL AND ENDWALL.
4. A MINIMUM OF 3" CLEARANCE IS REQUIRED FOR REBAR TO EXTERIOR FACE OF CONCRETE.
5. CULVERTS SHALL BE 24-INCH DIAMETER CORRUGATED HDPE PIPE MANUFACTURED BY ADS OR APPROVED EQUAL.
6. ON DETAILS, REBAR MAY BE SHOWN AT EXAGGERATED SCALE FOR REPRESENTATION.

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THE CITY OF SAN ANGELO TEXAS

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121782
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ES-X-XX

CONSTRUCTION NOTES

NORTH MONROE STREET REHABILITATION AT BRENTWOOD PARK

PROJECT NO: 2016-10-292

DESIGN BY: A.V.

DRAWN BY: M.P.

SCALE: NTS

DATE: 02/2018

ARCHIVE NO: X-XXXX

SHEET NO. C-001

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BENCHMARK POINTS

LABEL	EASTING	NORTHING	ELEVATION
A	2255107.9711'	10497698.7053'	1852.48'
B	2255147.3241'	10497639.7253'	1851.88'
C	2255150.4521'	10497629.5153'	1851.86'
D	2255183.2451'	10497515.0053'	1852.62'

0 15' 30'

INCHES TO FEET

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ES-X-XX

BENCHMARK SHEET

NOTH MONROE STREET REHABILITATION
AT BRENTWOOD PARK

PROJECT NO: 2016-20-292

DESIGN BY: A.V.

DRAWN BY: M.P.

SCALE: 1"=30'

DATE: 02/2018

ARCHIVE NO: #-####

SHEET NO. C-002

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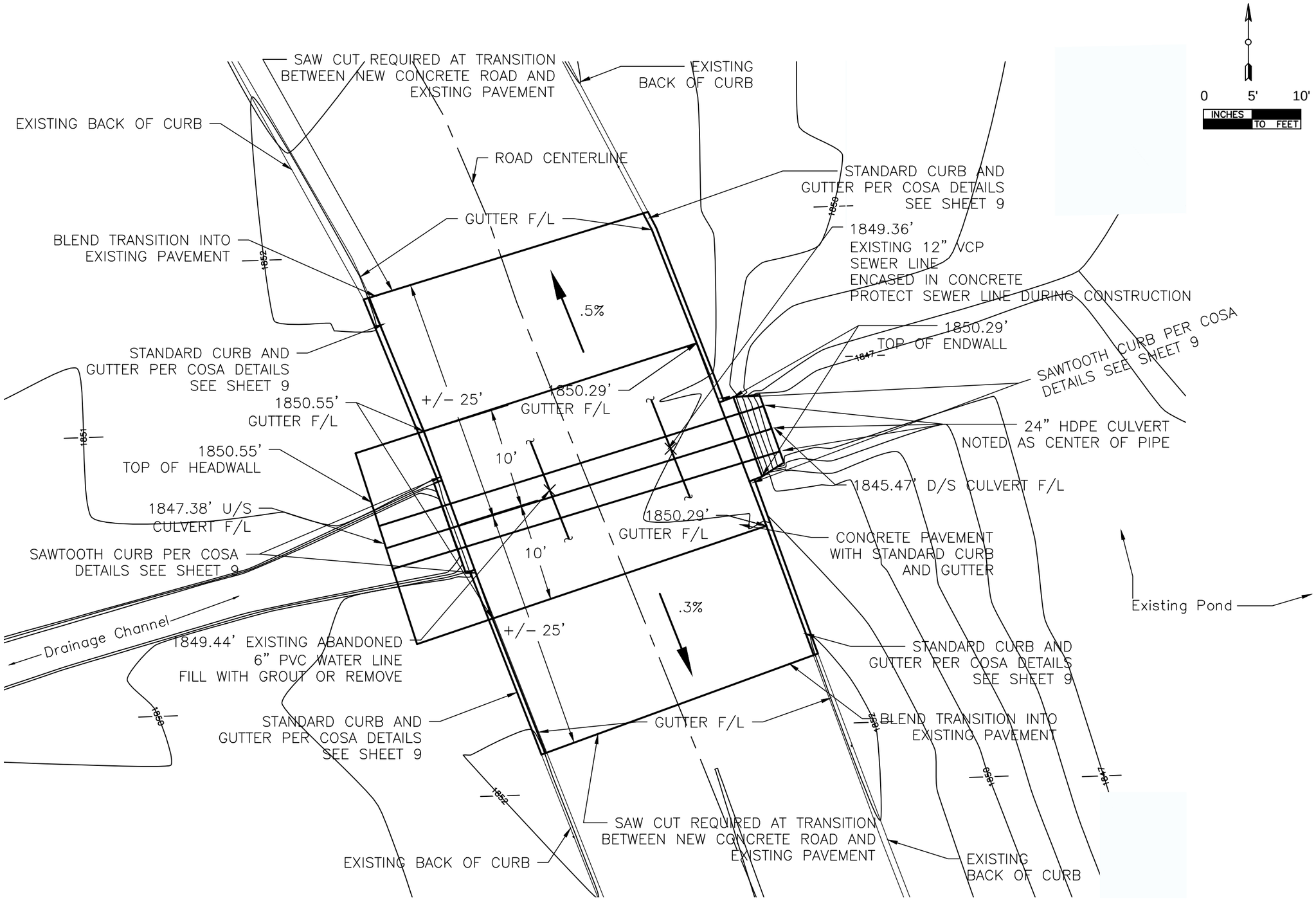

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STATE OF TEXAS

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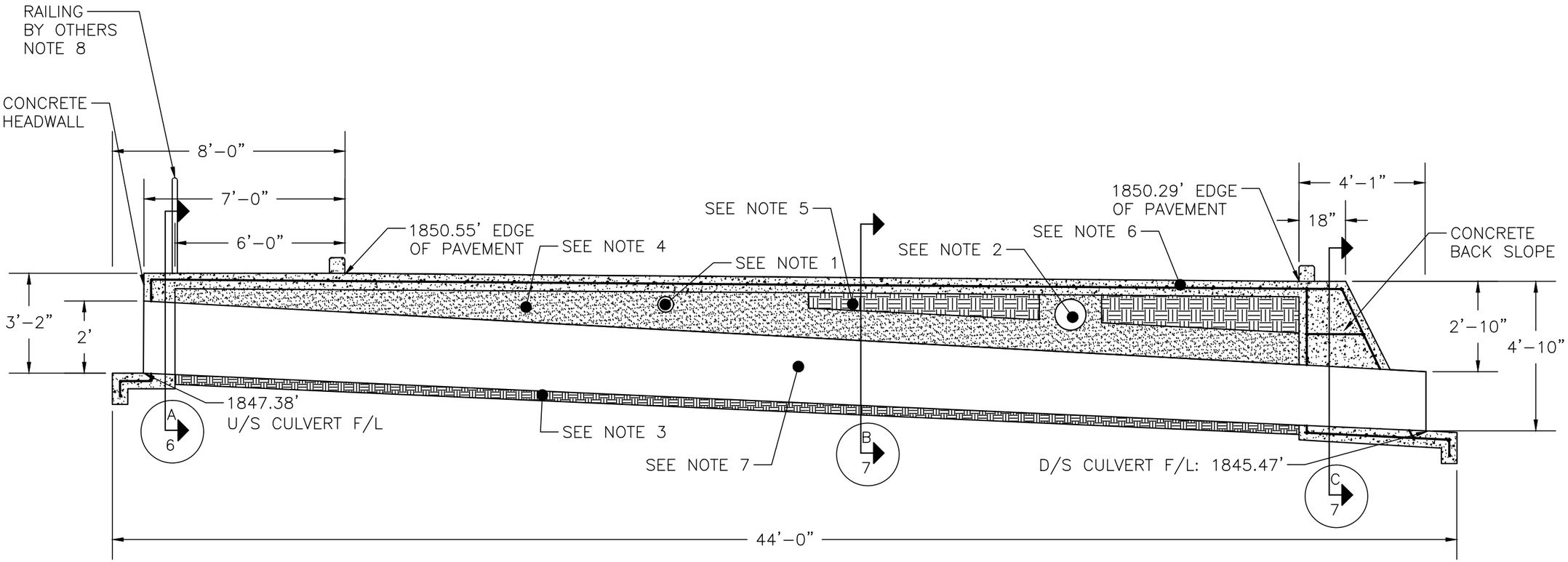
ES-X-XX

PLAN VIEW
NOTH MONROE STREET REHABILITATION
AT BRENTWOOD PARK

PROJECT NO: 2016-20-292

DESIGN BY: A.V.
DRAWN BY: M.P.

SCALE: 1"=10'
DATE: 02/2018
ARCHIVE NO: #-#####
SHEET NO. C-100
4 OF 12



Profile View
NOT TO SCALE

PROFILE NOTES

NOTE 1 = EXISTING ABANDONED 6" PVC WATER LINE– FILL WITH GROUT OR REMOVE
NOTE 2 = EXISTING 12" VCP SEWER LINE ENCASED IN CONCRETE– PROTECT SEWER LINE DURING CONSTRUCTION
NOTE 3 = 4" TO 6" OF BEDDING PER COSA STANDARDS
NOTE 4 = FLOWABLE FILL WITH VARIED DEPTH ABOVE CULVERT (MINIMUM DEPTH OF 12")
NOTE 5 = BASE FILL– DEPTH VARIES (MINIMUM DEPTH OF 6")
NOTE 6 = 6" OF CONCRETE PAVEMENT WITH REBAR PER COSA STANDARDS
NOTE 7 = 24" HDPE CULVERT PIPE (CORRUGATED ADS OR APPROVED EQUAL)
NOTE 8 = RAILING TO BE INSTALLED BY CITY OF SAN ANGELO FOLLOWING COMPLETION OF THIS PROJECT. CONTRACTOR TO COORDINATE WITH CITY SO RAILING BASE PLATE CAN BE INSTALLED DURING CONCRETE CONSTRUCTION.

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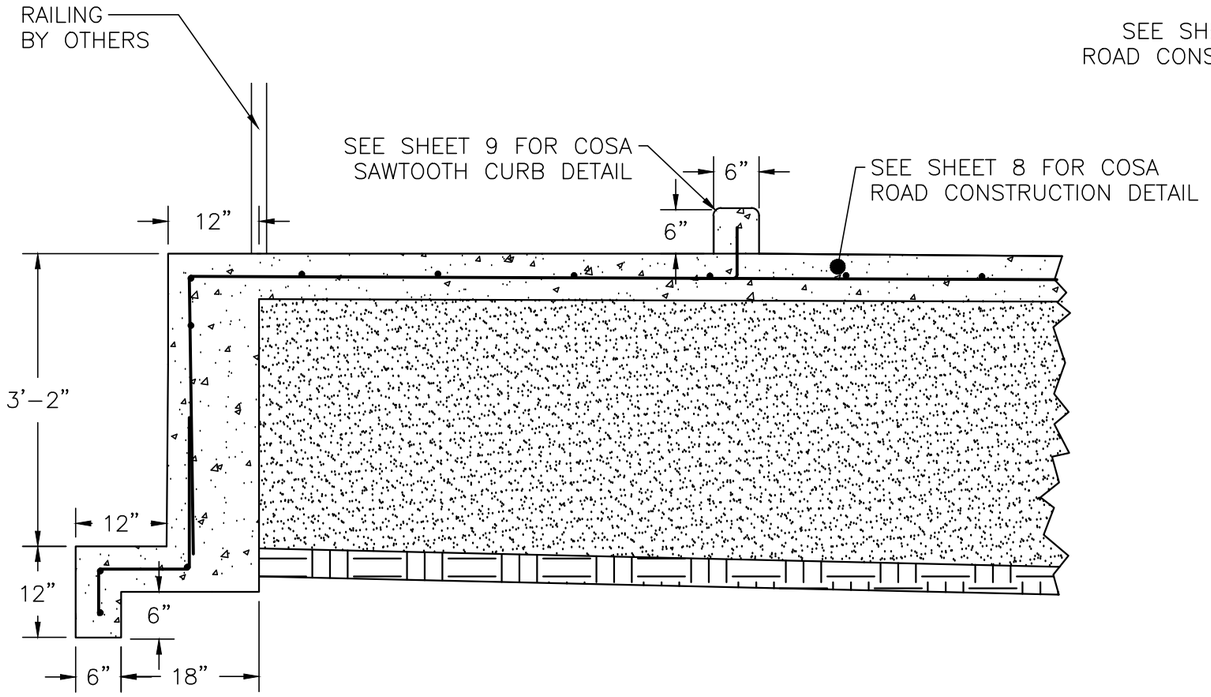
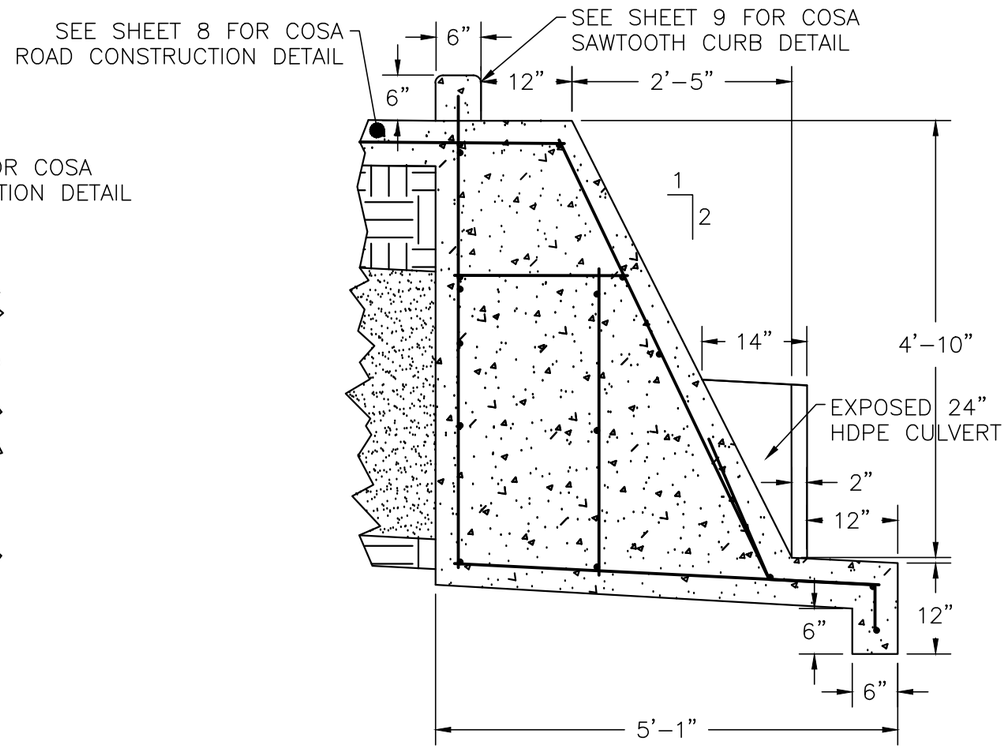
ES-X-XX
PROFILE VIEW
NOTH MONROE STREET REHABILITATION
AT BRENTWOOD PARK
PROJECT NO: 2016-20-292
DESIGN BY: A.V.
DRAWN BY: M.P.

SCALE: NTS
DATE: 02/2018
ARCHIVE NO: #-####
SHEET NO. C-200
5 OF 12



HEADWALL

SEE SHEET 5 FOR PROFILE
NOT TO SCALE



ENDWALL

SEE SHEET 5 FOR PROFILE
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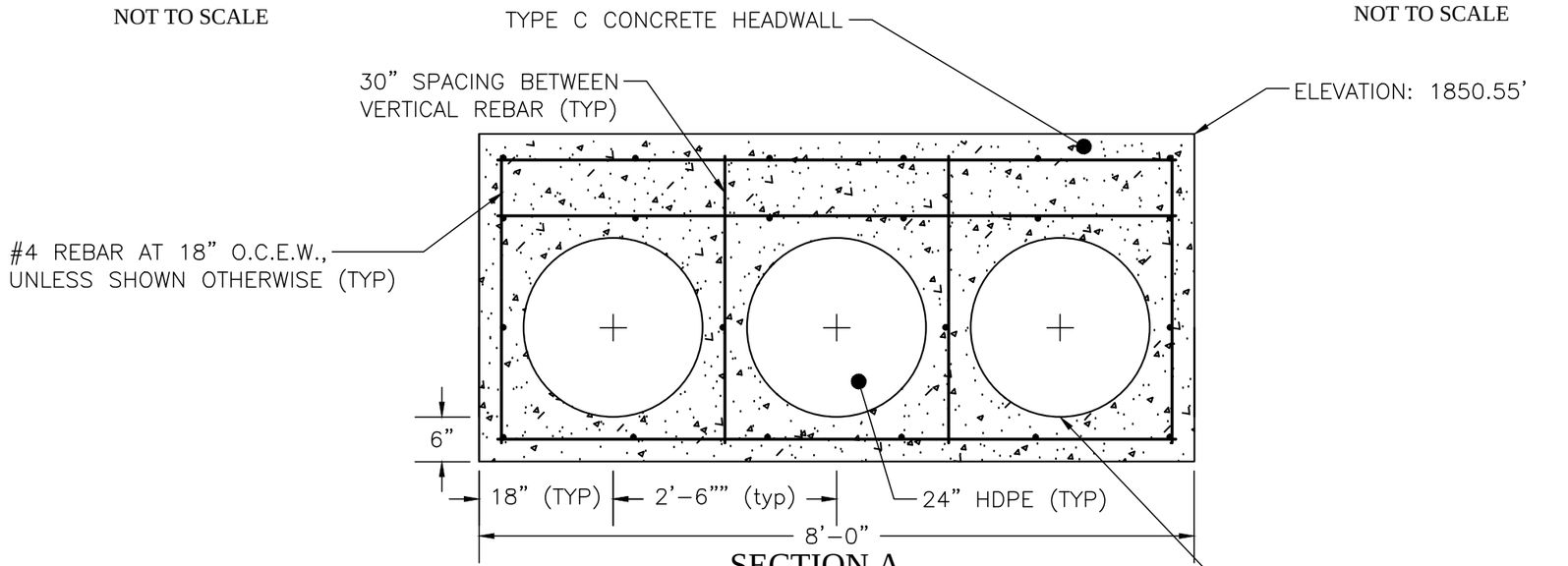

SECTION A

SEE SHEET 5 FOR PROFILE
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ES-X-XX

SECTION VIEWS
NOTH MONROE STREET REHABILITATION
AT BRENTWOOD PARK

PROJECT NO: 2016-20-292

DESIGN BY: A.V.
DRAWN BY: M.P.

SCALE: NTS
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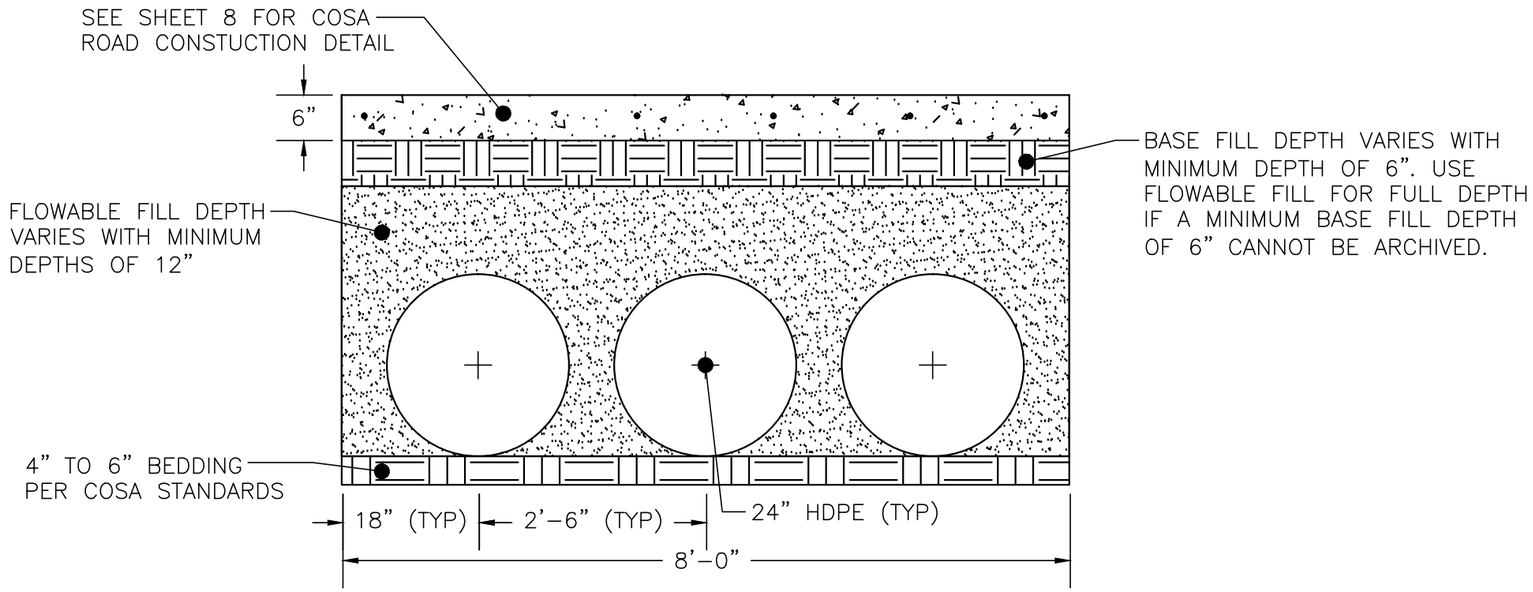
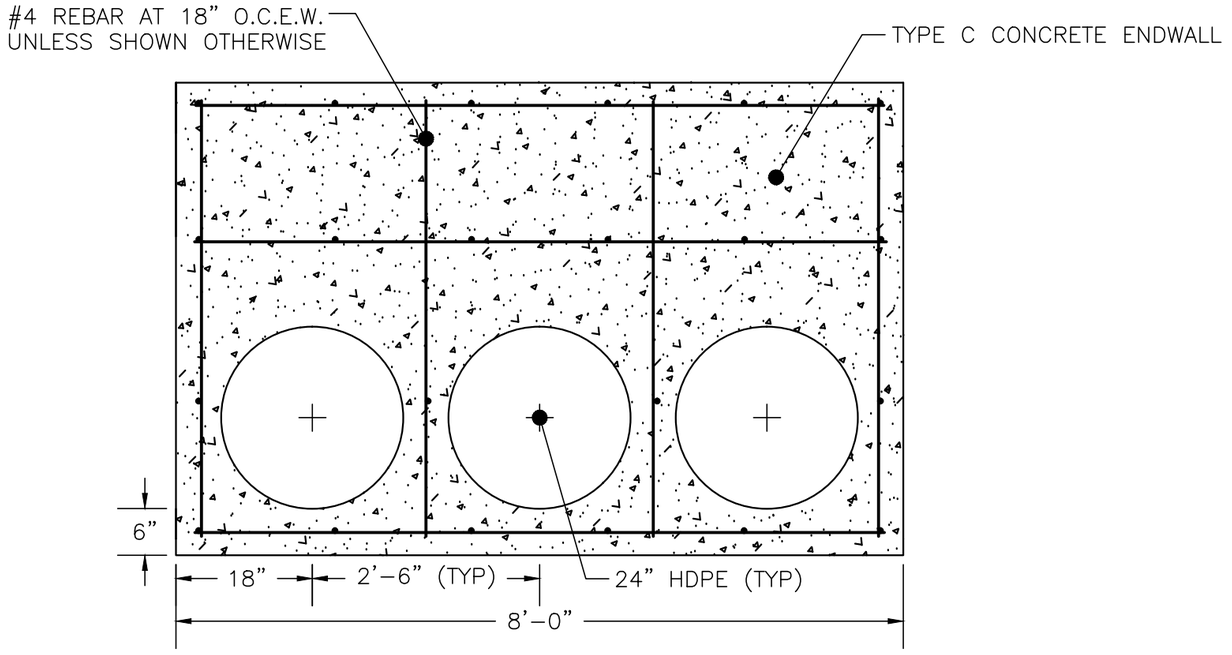
SHEET NO. C-300
6 OF 12



SECTION B

SEE SHEET 5 FOR PROFILE
NOT TO SCALE



SECTION C

SEE SHEET 5 FOR PROFILE
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SECTION VIEW

NOTH MONROE STREET REHABILITATION
AT BRENTWOOD PARK

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DESIGN BY: A.V.

DRAWN BY: M.P.

SCALE: NTS

DATE: 02/2018

ARCHIVE NO: #####

SHEET NO. C-301

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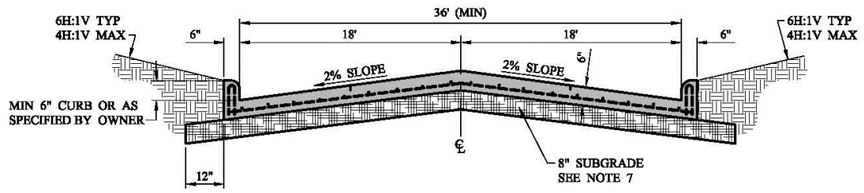

TYPICAL SECTION
NOT TO SCALE

NOTES:

1. PROVIDE SAWED TRANSVERSE CONTRACTION JOINTS NOT MORE THAN 15' C-C.
2. REINFORCEMENT - #4 BARS AT 18" O.C.E.W.
3. EXPANSION JOINTS TO BE PLACED AT ALL INTERSECTIONS AND NOT TO EXCEED 50' BETWEEN JOINTS.
4. CONCRETE SHALL BE CLASS "P".
5. ALL BASE AND SUBGRADE WILL BE DENSITY CONTROLLED AND WILL MEET ALL SPECIFICATION REQUIREMENTS FOR THE CITY OF SAN ANGELO.
6. IT IS THE GOAL OF THE CITY TO DESIGN AND CONSTRUCT A STREET SYSTEM THAT WILL HAVE A LIFE EXPECTANCY OF TWENTY YEARS WITH NORMAL MAINTENANCE. STREETS THAT ARE CONSTRUCTED IN INDUSTRIAL AREAS WHERE HEAVY LOADS ARE EXPECTED WILL REQUIRE INDIVIDUAL DESIGN PROCESSES.
7. 8" ENGINEERED SUBGRADE. IF STABILIZATION IS REQUIRED, THE RATE WILL BE DETERMINED ACCORDING TO TEST RESULTS.

CITY OF SAN ANGELO

CONCRETE URBAN RESIDENTIAL STREETS WITH ALLEYS OR SIDEWALKS

S-J-1

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CONCRETE PAVEMENT DETAIL

NOTH MONROE STREET REHABILITATION
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PROJECT NO: 2016-20-292

DESIGN BY: A.V.

DRAWN BY: M.P.

SCALE: NTS

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SHEET NO. C-400

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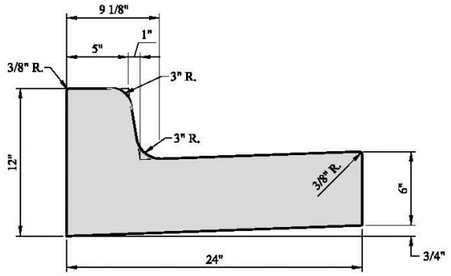
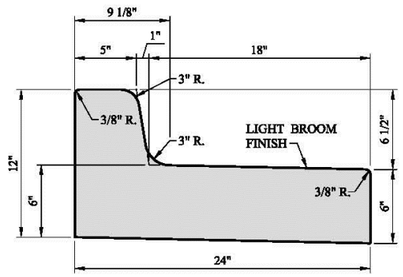
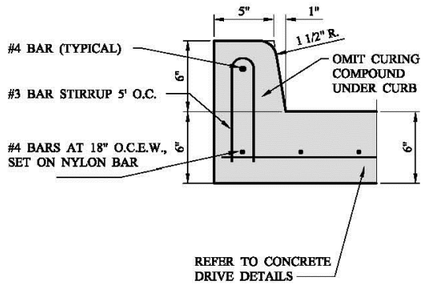


STANDARD CURB & GUTTER
NOT TO SCALE



SPILL CURB AND GUTTER
NOT TO SCALE



STANDARD MONOLITHIC CURB
ON CONCRETE DRIVEWAY
NOT TO SCALE

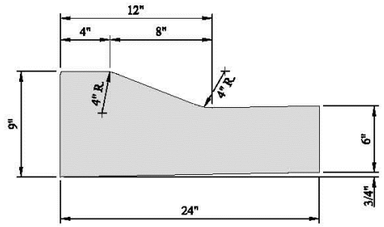
NOTES:

1. DIMENSIONS HEREIN SHOWN ARE MINIMUM REQUIRED. THE DESIGNER MAY ADJUST WIDTH ACCORDING TO THE NEED. CONCRETE FOR CURB AND GUTTER SHALL BE CLASS "A" CONCRETE EXCEPT FOR STANDARD MONOLITHIC CURB WHICH IS CLASS "P". THE USE OF MORTAR TOPPING IS OPTIONAL. IF NOT MACHINE LAID, A "MULE" FINISING TOOL SHALL BE USED.
2. ALL TOOLED CONTRACTION JOINTS WILL BE ON 10' SPACING AT 1-1/2" MINIMUM DEPTHS. 1/2" EXPANSION JOINTS ON 50' SPACING OR AT BEGINNING OF RADII, OR AT INTERSECTIONS. LIGHT BROOM FINISH.
3. EXTRUDED CONCRETE MAY USE A MODIFIED GRADATION FOR MACHINE LAID CURB AND GUTTER AS APPROVED BY THE CITY ENGINEER.
4. IF MACHINE LAID, A MAXIMUM 1" FLARE AT THE BOTTOM IS PERMITTED.

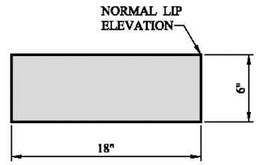
CITY OF SAN ANGELO

CONCRETE CURB & GUTTERS

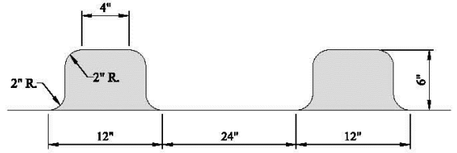
S-T-1



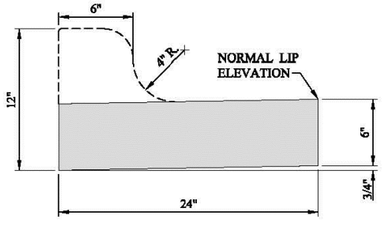
MOUNTABLE CURB
NOT TO SCALE



HEADER CURB
NOT TO SCALE



FRONT VIEW
NOT TO SCALE



SIDE VIEW
SAWTOOTH CURB
NOT TO SCALE

NOTES:

1. DIMENSIONS HEREIN SHOWN ARE MINIMUM REQUIRED. THE DESIGNER MAY ADJUST WIDTH ACCORDING TO THE NEED. CONCRETE FOR CURB AND GUTTER SHALL BE CLASS "A" CONCRETE EXCEPT FOR STANDARD MONOLITHIC CURB WHICH IS CLASS "P". THE USE OF MORTAR TOPPING IS OPTIONAL. IF NOT MACHINE LAID, A "MULE" FINISING TOOL SHALL BE USED.
2. ALL TOOLED CONTRACTION JOINTS WILL BE ON 10' SPACING AT 1-1/2" MINIMUM DEPTHS. 1/2". EXPANSION JOINTS ON 50' SPACING OR AT BEGINNING OF RADII, OR AT INTERSECTIONS. LIGHT BROOM FINISH.
3. EXTRUDED CONCRETE MAY USE A MODIFIED GRADATION FOR MACHINE LAID CURB AND GUTTER AS APPROVED BY THE CITY ENGINEER.
4. IF MACHINE LAID, A MAXIMUM 1" FLARE AT THE BOTTOM IS PERMITTED.

CITY OF SAN ANGELO

CONCRETE CURB & GUTTERS

S-T-2

CITY OF SAN ANGELO
ENGINEERING SERVICES
CITY HALL ANNEX
301 W. BEAUREGARD AVE.
SAN ANGELO, TX. 76903
(325)657-4201
www.cosatx.us

NO	DESCRIPTION	DATE

STATE OF TEXAS
RICKY L. OVERSTREET
121782
REGISTERED PROFESSIONAL ENGINEER

The Seal appearing on this document was authorized by Ricky L. Overstreet, P.E. 121782 on: February 20, 2018

ES-X-XX

CURB DETAILS

NOTH MONROE STREET REHABILITATION
AT BRENTWOOD PARK

PROJECT NO: 2016-20-292

DRAWN BY: M.P.

DESIGN BY: A.V.

SCALE: NTS

DATE: 02/2018

ARCHIVE NO: #####

SHEET NO. C-401

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

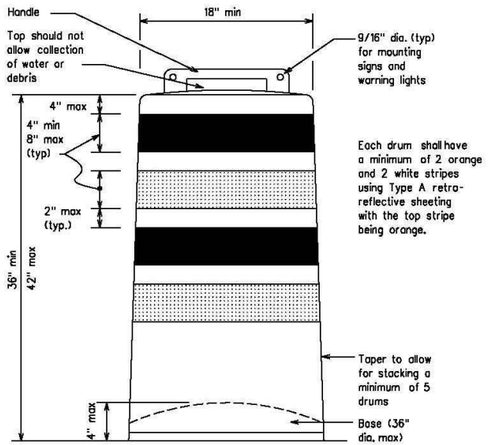
1. Plastic drums shall be a two-piece design: the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

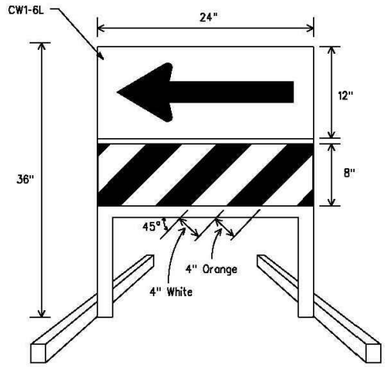
RETROREFLECTIVE SHEETING

1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

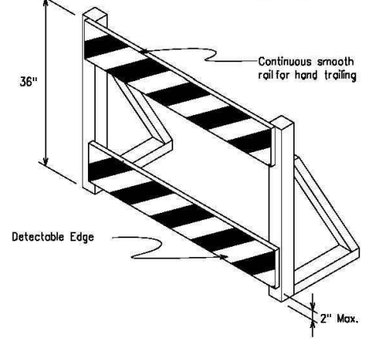




DIRECTION INDICATOR BARRICADE

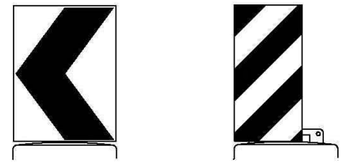
1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B or Type C Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades



DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades may use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer

12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B or Type C Orange fluorescent sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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NO	DESCRIPTION	DATE

RICKY L. OVERSTREET 121782 REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS

The Seal appearing on this document was authorized by Ricky L. Overstreet, P.E. 121782 on: February 20, 2018

ES-X-XX
TXDOT STANDARDS
NOTH MONROE STREET REHABILITATION AT BRENTWOOD PARK
PROJECT NO: 2016-20-292
DESIGN BY: A.V.
DRAWN BY: M.P.

SCALE: NTS
DATE: 02/2018
ARCHIVE NO: #####
SHEET NO. C-500
10 OF 12
10 of 12

DATE:
FILE:

Microstation V8.1 User: 02235(DGN): Fort Worth
Microstation V8.1 Dgn: N:\FW\Drawings\TXDOT Details\Phase I Txdot Details\Traffic Control Details\bc-14.dgn
Plotted: Jan. 12, 2017 - 03:53:18 PM Plotted By: 02235 Project: Phase I
Date: Jan. 12, 2017 - 03:53:18 PM

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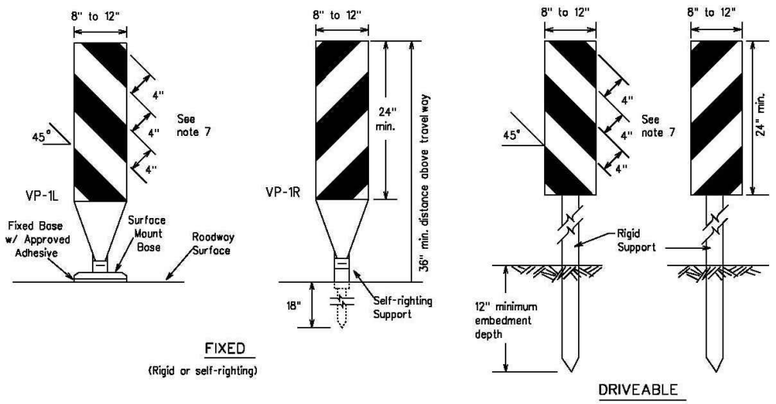
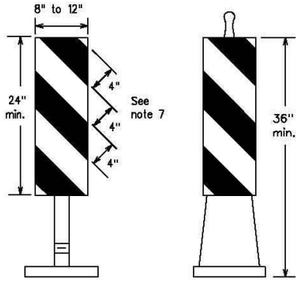


FIXED
(Rigid or self-righting)

DRIVEABLE

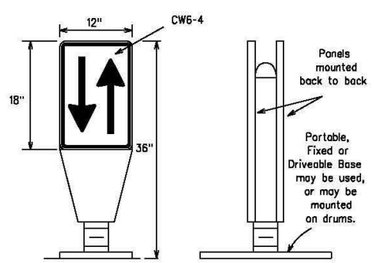


(Rigid or self-righting)

PORTABLE

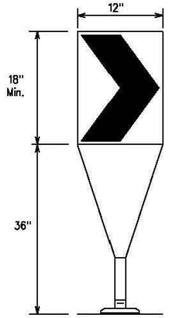
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travellane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

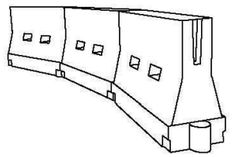
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10) placed near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom far users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L=WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

** Taper lengths have been rounded off.
L-Length of Taper (FT.) W-Width of Offset (FT.)
S-Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation — Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

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ENGINEERING SERVICES
CITY HALL ANNEX
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NO	DESCRIPTION	DATE

STATE OF TEXAS — RICKY L. OVERSTREET — 121782 — REGISTERED PROFESSIONAL ENGINEER

The Seal appearing on this document was authorized by Ricky L. Overstreet, P.E. 121782 on: February 20, 2018

SCALE: NTS	ES-X-XX	TXDOT STANDARDS	DRAWN BY: M.P.
DATE: 02/2018	NOTH MONROE STREET REHABILITATION AT BRENTWOOD PARK		DESIGN BY: A.V.
ARCHIVE NO: ####	PROJECT NO: 2016-20-292		
SHEET NO. C-501			
11 OF 12			

DATE:
FILE:

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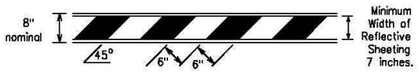
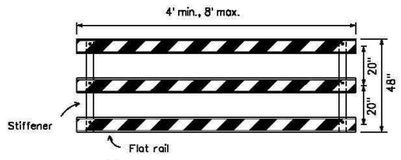
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



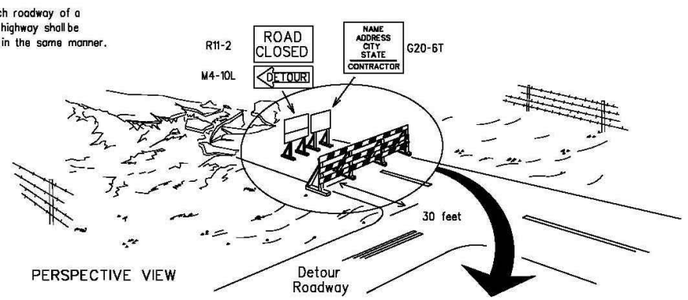
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

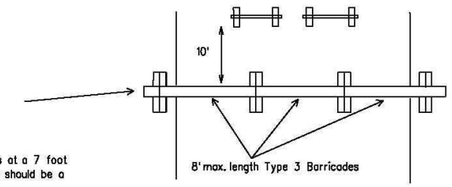
TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

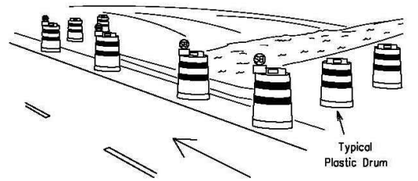
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

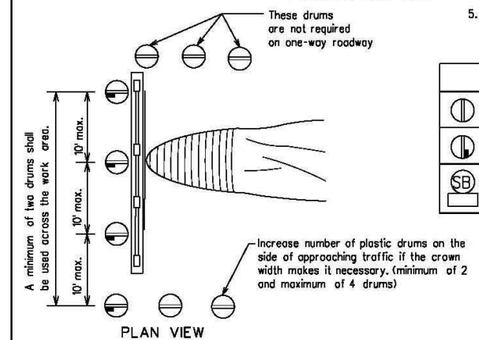
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

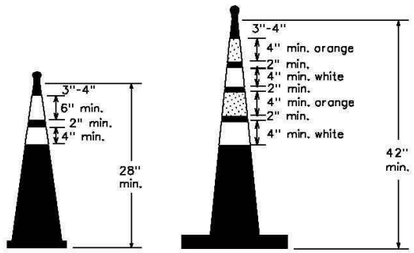
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



PLAN VIEW

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



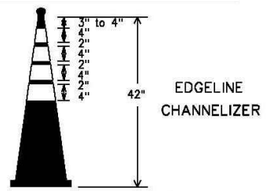
Two-Piece cones | One-Piece cones | Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

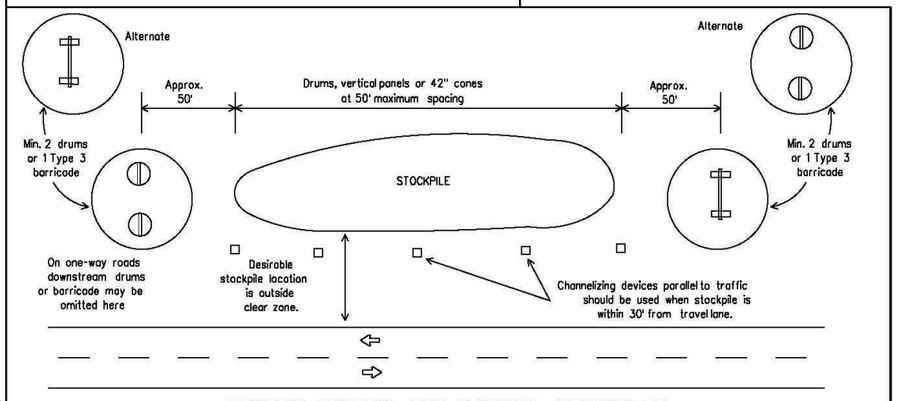
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers used at night shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO. 27
104				

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ENGINEERING SERVICES
CITY HALL ANNEX
301 W. BEAUREGARD AVE.
SAN ANGELO, TX. 76903
(325)657-4201
www.cosatx.us

NO	DESCRIPTION	DATE

RICKY L. OVERSTREET 121782 REGISTERED PROFESSIONAL ENGINEER

The Seal appearing on this document was authorized by Ricky L. Overstreet, P.E. 121782 on: February 20, 2018

ES-X-XX
TXDOT STANDARDS
NOTH MONROE STREET REHABILITATION AT BRENTWOOD PARK
PROJECT NO: 2016-20-292
DESIGN BY: A.V.
DRAWN BY: M.P.

SCALE: NTS
DATE: 02/2018
ARCHIVE NO: #####
SHEET NO. C-502
12 OF 12

MicroStation V8 User: 022350ffice: Fort Worth
Last Saved: Jan. 12, 2017 - 03:53:19 PM by User: 022350
Plotted: Jan. 12, 2017 - 03:53:19 PM
Date: Jan. 12, 2017 - 03:53:19 PM
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12/2017

Brentwood Park – With Culvert.dwg