

**CONSTRUCTION PLANS FOR
 WHITE ROCK CREEK BASIN
 OAKS NORTH DRIVE DRAINAGE IMPROVEMENTS
 FROM 14920 OAKS N. DR.
 TO 14953 OAKS N. DR.
 TOWN OF ADDISON
 PROJECT NO. 20-04
 NOVEMBER 2019**

MAYOR

JOE CHOW

CITY COUNCIL

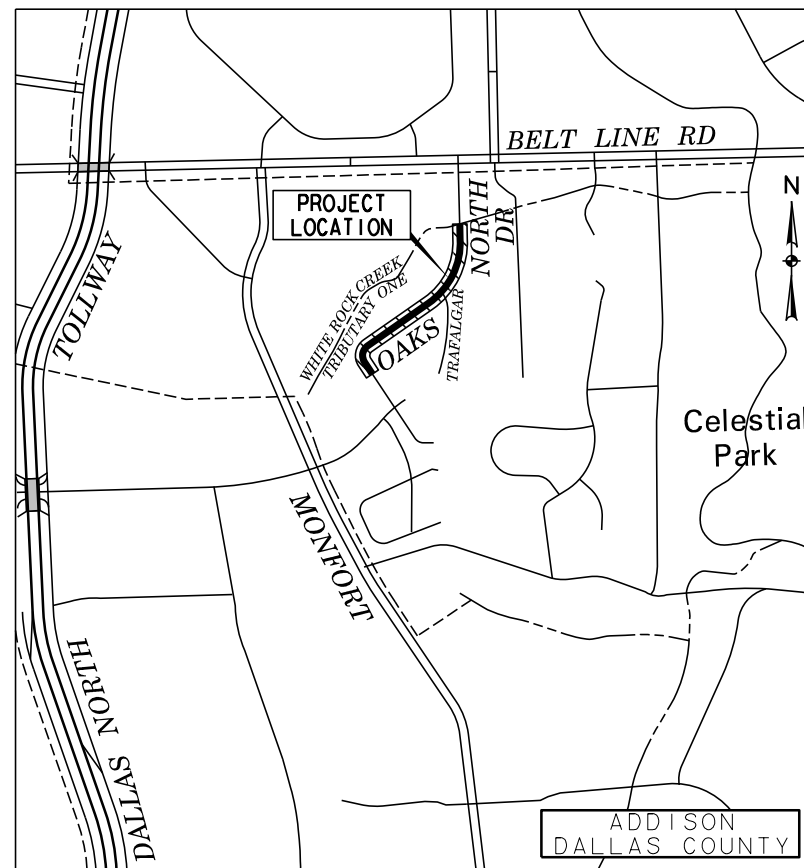
TOM BRAUN (MAYOR PRO TEMPORE)
 LORI WARD (DEPUTY MAYOR PRO TEMPORE)
 PAUL WALDEN
 IVAN HUGHES
 GUILLERMO QUINTANILLA
 MARLIN WILLESEN

CITY MANAGER

WESLEY S. PIERSON

DIRECTOR OF PUBLIC WORKS AND
ENGINEERING

LISA A. PYLES



LOCATION MAP-NOT TO SCALE MAPSCO 15-A
PROJECT LENGTH: 961 LF

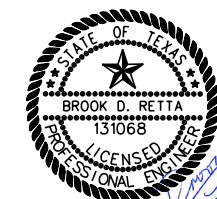
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PLANS AND DETAILS APPROVED FOR THIS PROJECT

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CD-01 THRU CD-06	CONSTRUCTION DETAILS
N/A	TXDOT DETAILS
	BC(1)-14 1/12
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	BC(9)-14 9/12
	BC(10)-14 10/12
	BC(11)-14 11/12
	BC(12)-14 12/12
	TCP (2-2)-18
	PED-18 (4 SHEETS)

CRIADO

4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
 FIRM NO. F-4373



Nov 07, 2019

**PREPARED FOR
 TOWN OF ADDISON, TEXAS**

PUBLIC WORKS AND ENGINEERING DEPARTMENT
 16801 WESTGROVE DRIVE, ADDISON, TEXAS 75001-5190

DATE: 11/7/2019
 TIME: 12:56:38 PM
 FILE NAME: N:\PROJECTS\14285_00_Addison_2017\Various Projects\R14285.01_White Rock Drainage\07_DGN\076_Sheet14285.01_Summary of Quantity.dgn

SUMMARY OF QUANTITY			
Item #	Bid Qty.	Unit	Description
General			
1	1	LS	Mobilization
Paving			
2	880	SY	Remove & Dispose of Existing Pavement
3	160	SY	Remove & Dispose of Existing Sidewalk
4	880	SY	8-inch Reinforced Concrete Pavement (High Early Strength)
5	130	SY	4-inch Reinforced Concrete Sidewalk (Exposed Aggregate)
6	405	LF	6" Monolithic Curb
7	3	EA	Speed Hump (Match Existing Stamped Concrete)
8	140	SY	Sod W/ Topsoil (4" Depth)
9	2	EA	Project Sign
10	100	SY	Temporary Pavement
11	2	EA	Barrier Free Ramp
12	26	LF	Furnish and Install REF PAV MRK TY I (W) 12" (SLD) (125 MIL)
13	2	EA	Furnish & Install Small Roadside Sign Assembly
14	1	EA	Construct Median Nose
15	20	CY	Stabilized Construction Exit (Stone)
16	3	MO	Traffic Control
Storm Water Drainage			
17	1	LS	Storm Water Pollution Prevention Plan (SW3P) - Including Maintenance, Inlet Protection and Erosion Control
18	50	LF	18-inch Class III Reinforced Concrete Pipe
19	550	LF	21-inch Class III Reinforced Concrete Pipe
20	140	LF	21-inch Class III Reinforced Concrete Radius Pipe (Joint Length = 4 feet)
21	270	LF	24-inch Class III Reinforced Concrete Pipe
22	1,010	LF	Trench Safety
23	4	EA	10-foot Standard Concrete Curb Inlet (Exposed Aggregate)
24	1	EA	20-foot Standard Concrete Curb Inlet (Exposed Aggregate)
25	2	EA	4'x4' Storm Water Manhole
26	1	EA	Pipe to Existing Structure Connection
27	1,010	LF	Television Inspection
28	1,010	LF	Construction Surveying & Staking
29	2	EA	Water Main Lowering
30	6	EA	4-inch Sanitary Sewer Service
31	2	EA	Adjust Water Meter
32	7	EA	Furnish & Install 1-inch Standard Water Service



REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
1			
2			



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**SUMMARY OF QUANTITY SHEET
 (SHEET 1 OF 1)**
**OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS**
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	SUMMARY OF QUANTITY	2

GENERAL NOTES

1. OWNER

TOWN OF ADDISON
PUBLIC WORKS AND ENGINEERING DEPARTMENT
16801 WESTGROVE DRIVE
ADDISON, TX 75001-5190
CONTACT: WILSON K. KAKEMBO
PH: (972) 450-2870
EMAIL: WKAKEMBO@ADDISONTX.GOV
2. ALL WORK, UNLESS OTHERWISE NOTED, SHALL CONFORM TO THE REQUIREMENTS OF THE TOWN OF ADDISON AND SHALL BE IN ACCORDANCE WITH THE TOWN OF ADDISON STANDARD DETAILS AND SPECIFICATIONS FOR CONSTRUCTION. ALL WORK NOT COVERED IN THE CONTRACT DOCUMENTS AND THE TOWN OF ADDISON STANDARD DETAILS AND SPECIFICATIONS FOR CONSTRUCTION SHALL BE GOVERNED BY THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG) STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, FIFTH EDITION, DATED 2017, INCLUDING ALL AMENDMENTS OR TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT) STANDARD SPECIFICATIONS, DATED 2014, AS INDICATED IN THE PROJECT MANUAL. A COPY OF THE CONTRACT DOCUMENTS, PLANS AND SPECIFICATIONS SHALL BE AVAILABLE ON-SITE AT ALL TIMES BY THE CONTRACTOR.
3. PRIOR TO SUBMISSION OF THE BID PROPOSAL, THE CONTRACTOR SHALL HAVE MADE A CAREFUL EXAMINATION OF THE WORK SITE, ALL THE CONTRACT DOCUMENTS, AND ALL MATTERS THAT MAY AFFECT THE COST AND TIME FOR THE COMPLETION OF THE WORK INVOLVED. FAILURE ON THE PART OF THE CONTRACTOR TO BE FAMILIAR WITH ALL STANDARDS AND SPECIFICATIONS PERTAINING TO THIS WORK SHALL IN NO WAY RELIEVE THE CONTRACTOR OF RESPONSIBILITY OF PERFORMING THE WORK IN ACCORDANCE WITH ALL SUCH APPLICABLE STANDARDS AND SPECIFICATIONS.
4. THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND THERE MAY BE OTHER UNKNOWN EXISTING UTILITIES NOT SHOWN ON THE PLANS. ALL EXISTING UTILITIES SHALL BE FIELD VERIFIED AND PROTECTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE PROTECTION OF EXISTING UTILITIES AND APPURTENANCES, INCLUDING EXISTING UTILITY POLES IN THE VICINITY OF CONSTRUCTION OPERATIONS WHETHER UTILITIES ARE SHOWN IN THE CONTRACT DOCUMENTS OR NOT. ANY DAMAGE INCURRED TO EXISTING UTILITIES WHERE SHOWN OR NOT, APPURTENANCES, POWER POLES, ETC. BY CONSTRUCTION RELATED ACTIVITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS AT NO COST TO THE TOWN OF ADDISON. THE CONTRACTOR SHALL CONTACT THE FOLLOWING FRANCHISE UTILITY COMPANIES 72 HOURS PRIOR TO DOING ANY WORK IN THE AREA:
 A) ENGINEERING DEPARTMENT - WILSON KAKEMBO - WKAKEMBO@ADDISONTX.GOV
 B) PARKS DEPARTMENT- JANNA TIDWELL - JTIDWELL@ADDISONTX.GOV
 C) ONCOR ELECTRIC - LARRY BALDWIN - LARRY.BALDWIN@ONCOR.COM
 D) ATMOS ENERGY - BOBBY ROGERS - BOBBY.ROGERS@ATMOSENERGY.COM
 E) AT&T - CHAD COOPER - CC8956@ATT.COM
 F) TIME WARNER CABLE - DAVID CHENEY - DAVID.CHENEY@TWCABLE.COM
 G) FIBERLIGHT - MIKE BITSCHKE - MIKE.BITSCHKE@FIBERLIGHT.COM
 H) CALL 811
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE FOLLOWING AT NO ADDITIONAL COMPENSATION:
 A) PREVENT PROPERTY DAMAGE TO PROPERTY OWNER'S POLES, FENCES, SHRUBS, MAILBOXES, CURBS, PAVEMENT, SPRINKLER SYSTEMS, SPRINKLER HEADS, CONCRETE STRUCTURES, ETC.
 B) PROVIDE AND MAINTAIN ACCESS TO ALL ROADS, DRIVES, AND PRIVATE PROPERTIES DURING CONSTRUCTION.
 C) PROTECT ALL UNDERGROUND AND OVERHEAD UTILITIES AND REPAIR ANY DAMAGES.
 D) NOTIFY ALL UTILITY COMPANIES AND VERIFY LOCATION OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
 E) COORDINATE AND COOPERATE WITH THE UTILITY COMPANIES WHERE UTILITIES ARE REQUIRED OR SPECIFIED TO BE RELOCATED.
 F) WORK IN CLOSE PROXIMITY TO AND PROTECT EXISTING UTILITY MAINS, TRAFFIC LIGHTS AND POLES.
 G) PROVIDE AND MAINTAIN STORM WATER DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
6. ALL COMMUNICATION BETWEEN THE TOWN AND THE CONTRACTOR SHALL BE THROUGH THE TOWN INSPECTOR ONLY.
7. THE CONTRACTOR SHALL INSTALL THE CAPITAL IMPROVEMENT PROJECT SIGNS AS SPECIFIED IN SECTION PS OF THE SPECIAL CONDITIONS OF AGREEMENT AS PER THE ENGINEER'S SPECIFICATIONS PRIOR TO ANY CONSTRUCTION.
8. THE SUCCESSFUL CONTRACTOR SHALL PREPARE AND SUBMIT WRITTEN SUBMITTALS, INCLUDING BUT NOT LIMITED TO SEQUENCE OF CONSTRUCTION PLAN AND WORK SCHEDULE, TRAFFIC CONTROL PLAN, TRENCH SAFETY PLAN, BYPASS PUMPING PLAN, AND DISPOSAL PLAN TO THE TOWN OF ADDISON PRIOR TO COMMENCING WORK AND PROVIDE MONTHLY UPDATES UNTIL THE PROJECT IS COMPLETED. SEQUENCE OF CONSTRUCTION PLAN SHALL DEMONSTRATE THAT ACCESS FOR PROPERTY OWNERS/TENANTS AND FOR EMERGENCY SERVICES IS PROVIDED AT ALL TIMES. TRAFFIC CONTROL PLAN SHALL INDICATE ALL LANE CLOSURES AND DETOURS DURING ALL PHASES OF CONSTRUCTION.
9. CONSTRUCTION MAY ONLY OCCUR FROM 7 A.M. TO 7 P.M. MONDAY THROUGH FRIDAY AND FROM 8 A.M. TO 7 P.M. SATURDAY. NO WORK SHALL OCCUR ON SUNDAYS UNLESS APPROVED BY THE TOWN OF ADDISON.
10. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING, OBTAINING, AND PAYING FOR ANY WATER, ELECTRICAL, OR OTHER SERVICES NEEDED FOR ANY OPERATIONS REQUIRED FOR THIS PROJECT.
11. VEHICULAR TRAFFIC FLOW, SAFETY AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. BARRICADING AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE LATEST EDITION OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD). TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL ASSUME FULL CONSTRUCTION AREA FOR THE DURATION OF CONSTRUCTION ACTIVITIES.
12. THE CONTRACTOR SHALL SWEEP THE AFFECTED AREA AND ADJACENT STREET WITHIN 200 FEET OF CONSTRUCTION ENTRANCES ONCE A WEEK AND PRIOR TO FORECASTED MAJOR RAIN EVENTS AT NO ADDITIONAL COST TO THE TOWN.
13. ANY DEBRIS, DIRT, OR MUD ON THE ROADWAY MUST BE CLEARED IMMEDIATELY.
14. THE CONTRACTOR SHALL REMOVE FROM THE PROJECT ALL SURPLUS MATERIAL. THIS WORK SHALL BE INCIDENTAL AND NOT A SEPARATE PAY ITEM. SURPLUS MATERIALS FROM EXCAVATION INCLUDING DIRT, TRASH, ROCK MEASURING GREATER THAN 2" IN THE LARGEST DIMENSION, ETC. SHALL BE PROPERLY DISPOSED OF AT A SITE ACCEPTABLE TO THE TOWN OF ADDISON IF WITHIN THE TOWN LIMITS. IF THE LOCATION IS NOT WITHIN THE TOWN LIMITS, THE CONTRACTOR SHALL PROVIDE A LETTER STATING SO. NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAYS WITHOUT WRITTEN PERMISSION FROM THE AFFECTED PROPERTY OWNER AND THE TOWN OF ADDISON. IF THE CONTRACTOR PLACES EXCESS MATERIAL IN THESE AREAS WITHOUT WRITTEN PERMISSION, HE WILL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM SUCH FILL AND HE SHALL REMOVE THE MATERIAL AT HIS OWN COST.
15. ALL PHASES OF CONSTRUCTION MUST BE COORDINATED WITH THE TOWN. FIELD ADJUSTMENTS MAY BE NECESSARY AND WILL BE CARRIED OUT AS DIRECTED BY THE ENGINEER, AT NO EXTRA PAY.
16. TEXAS STATE LAW, ARTICLE 1436C, MAKES UNLAWFUL THE OPERATION OF EQUIPMENT OR MACHINES WITHIN 10 FEET OF ANY OVERHEAD ELECTRICAL LINE, UNLESS CONTACT WITH HIGH VOLTAGE LINES HAS BEEN EFFECTIVELY GUARDED AGAINST, PURSUANT TO THE PROVISION OF THE ARTICLE. WHEN CONSTRUCTION OPERATIONS REQUIRE WORKING NEAR AN OVERHEAD ELECTRICAL LINE, THE CONTRACTOR SHALL CONTACT THE OWNER/OPERATOR OF THE OVERHEAD ELECTRICAL LINE TO MAKE ADEQUATE ARRANGEMENTS AND TO TAKE NECESSARY SAFETY PRECAUTIONS TO ENSURE THAT ALL LAWS, ELECTRICAL LINE OWNER/OPERATOR REQUIREMENTS, AND STANDARD INDUSTRY PRECAUTIONS ARE MET.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, LICENSES, ETC. REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
18. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS OWN TOILET FACILITIES AND OTHER NECESSARY BUILDING SHELTERS. THE TOWN WILL NOT PROVIDE ANY FACILITIES TO THE CONTRACTOR DURING CONSTRUCTION.
19. OWNER'S AUTHORIZED REPRESENTATIVE (OAR) AND THE ENGINEER SHALL BE NOTIFIED 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
20. WORK CANNOT COMMENCE UNTIL:
 A) THE TOWN HAS ISSUED A NOTICE TO PROCEED.
 B) ALL SAFETY EQUIPMENT FOR PERSONNEL AND CONSTRUCTION EQUIPMENT IS IN PLACE AND OPERABLE.
 C) ALL NECESSARY EROSION CONTROL MEASURES ARE IN PLACE TO PROTECT EXISTING DRAINAGE STRUCTURES.
21. MAINTAIN EXISTING PROJECT DRAINAGE UTILITIES UNTIL NEW DRAINAGE FACILITIES ARE FUNCTIONAL; INCLUDING, WHERE NECESSARY, INTERIM REPLACEMENT OF EXISTING DRAINAGE STRUCTURES REMOVED FOR CONSTRUCTION OF NEW DRAINAGE FACILITIES.
22. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS REGARDING TRENCH SAFETY.
23. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY OAR.
24. THE CONTRACTOR SHALL CONTACT THE TOWN OF ADDISON PUBLIC WORKS AND ENGINEERING DEPARTMENT PRIOR TO ANY SIGN REMOVAL. SIGN REMOVAL AND REINSTALLATION/RELOCATION SHALL BE IN GOOD CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION, AND AS PER THE ENGINEER'S SPECIFICATIONS, WITH THE COST INCIDENTAL TO THE PROJECT BID ITEMS.
25. ALL THE EXISTING SURFACE FEATURES WITHIN LIMITS OF PROJECT, INCLUDING, BUT NOT LIMITED TO PAVEMENTS, SIDEWALKS, TRAILS, LANDSCAPE, FENCES, MAILBOXES, LIGHT POLES, SIGNS, PROPERTY CORNER MONUMENTS, ETC. SHALL BE THOROUGHLY DOCUMENTED PRIOR TO CONSTRUCTION WITH PICTURES AND VIDEOS; AND RESTORED AFTER CONSTRUCTION TO THE SAME OR BETTER CONDITIONS WITH EQUAL OR BETTER MATERIALS. THE EXISTING PAVEMENT SHALL BE SAW-CUT ON BOTH SIDES OF THE PROPOSED STORM DRAIN TRENCH AND REPLACED IN KIND PER TOWN'S STANDARD DETAILS. THE FEATURES NOT SPECIFICALLY LISTED IN THE BID SCHEDULE ARE SUBSIDIARY TO LISTED BID ITEMS.
26. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS. ANY DAMAGE CAUSED BY THE CONTRACTOR OUTSIDE OF THE DESIGNATED WORK AREA SHALL BE REPAIRED WITH EQUAL OR BETTER QUALITY MATERIAL AT THE CONTRACTOR'S EXPENSE.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL PRECAUTIONS TO PROTECT EXISTING TREES OUTSIDE THE SCOPE OF THIS PROJECT. TREES SHALL ONLY BE REMOVED IF DESIGNATED ON THE PLANS.
28. WHERE TREES, PLANTS, SHRUBBERY, ETC. ARE ADJACENT TO THE LINE OF WORK AND ARE NOT TO BE REMOVED OR REMOVED AND REPLACED, THE CONTRACTOR SHALL PROTECT SUCH TREES, PLANTS, SHRUBBERY, ETC. IF SUCH TREES, PLANTS, SHRUBBERY, ETC. COULD BE DAMAGED BY MACHINERY, ETC., ORANGE SAFETY FENCING WITH STEEL T-POSTS HAVING A MINIMUM HEIGHT OF 3' AND AS APPROVED BY THE TOWN SHALL BE UTILIZED FOR PROTECTION. HAND EXCAVATION MAY ALSO BE REQUIRED IN THE VICINITY OF TREES, PLANTS, SHRUBBERY, ETC. THAT ARE TO REMAIN. THE CONTRACTOR SHALL NOT PERMIT MACHINERY OR EMPLOYEES TO SCRAPE, TEAR THE LIMBS FROM, DAMAGE OR ATTACH GUY CABLES TO EXISTING TREES THAT ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO ADJACENT TREES, PLANTS, SHRUBBERY, ETC. THAT ARE TO REMAIN AND ANY SUCH DAMAGE SHALL BE REMEDIED TO THE SATISFACTION OF THE TOWN.
29. ANY TREE PRUNING SHALL BE COORDINATED WITH THE TOWN'S PARKS DEPARTMENT.
30. ALL EXISTING GRADES SHOWN ON THE PLANS ARE APPROXIMATE AND SHOWN BASED ON THE BEST INFORMATION AVAILABLE.
31. THE CONTRACTOR SHALL KEEP THE EXISTING FIRE HYDRANTS IN SERVICE AT ALL TIMES.
32. THE CONTRACTOR SHALL MAINTAIN THE EXISTING WATER MAINS IN SERVICE DURING ALL PHASES OF CONSTRUCTION AT NO EXTRA PAY. LEAKS CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. LEAKS ALONG THE EXISTING WATER MAIN CLOSE TO THE WORKING AREA, CAUSED BY VIBRATION, ETC. (DURING WORKING HOURS) SHALL BE REPAIRED BY THE CONTRACTOR WITH THE TOWN ONLY PROVIDING THE REQUIRED PARTS. THE TOWN WILL REPAIR ALL LEAKS IF THE CONTRACTOR IS NOT ON THE JOB-SITE (PRIMARILY AFTER WORKING HOURS); IF THE LEAK IS DIRECTLY CAUSED BY THE CONTRACTOR AND NOT REPAIRED, ALL CHARGES INCURRED SHALL BE BILLED TO THE CONTRACTOR.
33. "SHEETING, SHORING AND BRACING": THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS GOVERNING EXCAVATION. TRENCH SIDE SLOPES SHALL MEET OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS THAT ARE IN EFFECT AT THE TIME OF BID OPENING. SHEETING, SHORING AND BRACING SHALL BE PROVIDED WHEN SIDE SLOPES STANDARDS ARE NOT MET. A PULL BOX, MEETING OSHA STANDARDS, MAY BE ACCEPTABLE, UNLESS NEGATED BY GROUNDWATER CONTROL MEASURES. THE APPARENT LOW BIDDER SHALL SUBMIT DETAILED PLANS AND SPECIFICATIONS FOR TRENCH SAFETY SYSTEM THAT MEET OSHA STANDARDS THAT ARE IN EFFECT AT THE TIME OF BID OPENING. THESE PLANS SHALL BE SEALED BY AN ENGINEER LICENSED BY THE STATE OF TEXAS AND SUBMITTED TO THE TOWN PRIOR TO THE FORMAL EXECUTION OF THE CONTRACT.
34. THE CONTRACTOR WILL FURNISH TO THE TOWN OF ADDISON THE NAME OF AN OSHA-CERTIFIED COMPETENT PERSON TO BE ON THE PROJECT AT ALL TIMES DURING ONGOING CONSTRUCTION ACTIVITIES.
35. CONTRACTOR SHALL CONFORM ACTIVITIES TO THE CONTRACTOR PREPARED SWPPP AS SPECIFIED, INCLUDING INSTALLING, MAINTAINING, AND REMOVING POLLUTION CONTROLS, CONDUCTING AND DOCUMENTING INSPECTIONS OF POLLUTION CONTROLS, SPRINKLING FOR DUST CONTROL, MAINTAINING SPILL RESPONSE EQUIPMENT ON-SITE, AND "GOOD HOUSEKEEPING". POLLUTION CONTROLS INCLUDE SILT FENCES (OR STRAW BALES), STABILIZED CONSTRUCTION ENTRANCE, ESTABLISHING GRASS, SPRINKLING FOR DUST CONTROL.
36. THE CONTRACTOR SHALL CEASE ALL CONSTRUCTION OPERATIONS IMMEDIATELY IF A SUSPECTED ARCHEOLOGICAL OBJECT/ARTIFACT IS UNCOVERED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY CONTACT THC AND THE TOWN. PROJECT WORK SHALL BE RECOMMENCE UNTIL PROPER PERMITS ARE IN PLACE AND PROVIDED TO THE TOWN.
37. IRRIGATION AND SPRINKLER SYSTEM NOTES:
 A) ALL ACTIVITIES THAT IMPACT EXISTING OR PROPOSED IRRIGATION SYSTEMS SHALL BE OVERSEEN BY A TEXAS LICENSED LANDSCAPE IRRIGATOR.
 B) PRIOR TO DEMOLITION OR CONSTRUCTION ACTIVITIES, EXISTING IRRIGATION SYSTEMS SHALL BE TURNED ON. THE LOCATION OF THE HEADS, VALVES, AND PIPE SHALL BE MARKED WHERE DEMOLITION OR CONSTRUCTION WILL IMPACT THE SYSTEM. DEFICIENCIES IN THE SYSTEM SHALL BE NOTED AND REPORTED TO THE SYSTEM OWNER.
 C) PIPING SHALL BE CUT, CAPPED, AND MARKED AT THE LIMITS OF CONSTRUCTION.
 D) AT THE COMPLETION OF CONSTRUCTION, THE LICENSED IRRIGATOR SHALL RESTORE AND TEST THE IRRIGATION SYSTEMS FOR PROPER FUNCTION. THE TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE TOWN'S REPRESENTATIVE AND THE SYSTEM OWNERS.
 E) THE CONTRACTOR SHALL MAINTAIN IRRIGATION OF LANDSCAPED AREAS ADJACENT TO THE PROJECT WHILE THE EXISTING IRRIGATION SYSTEM IS BEING MODIFIED.



REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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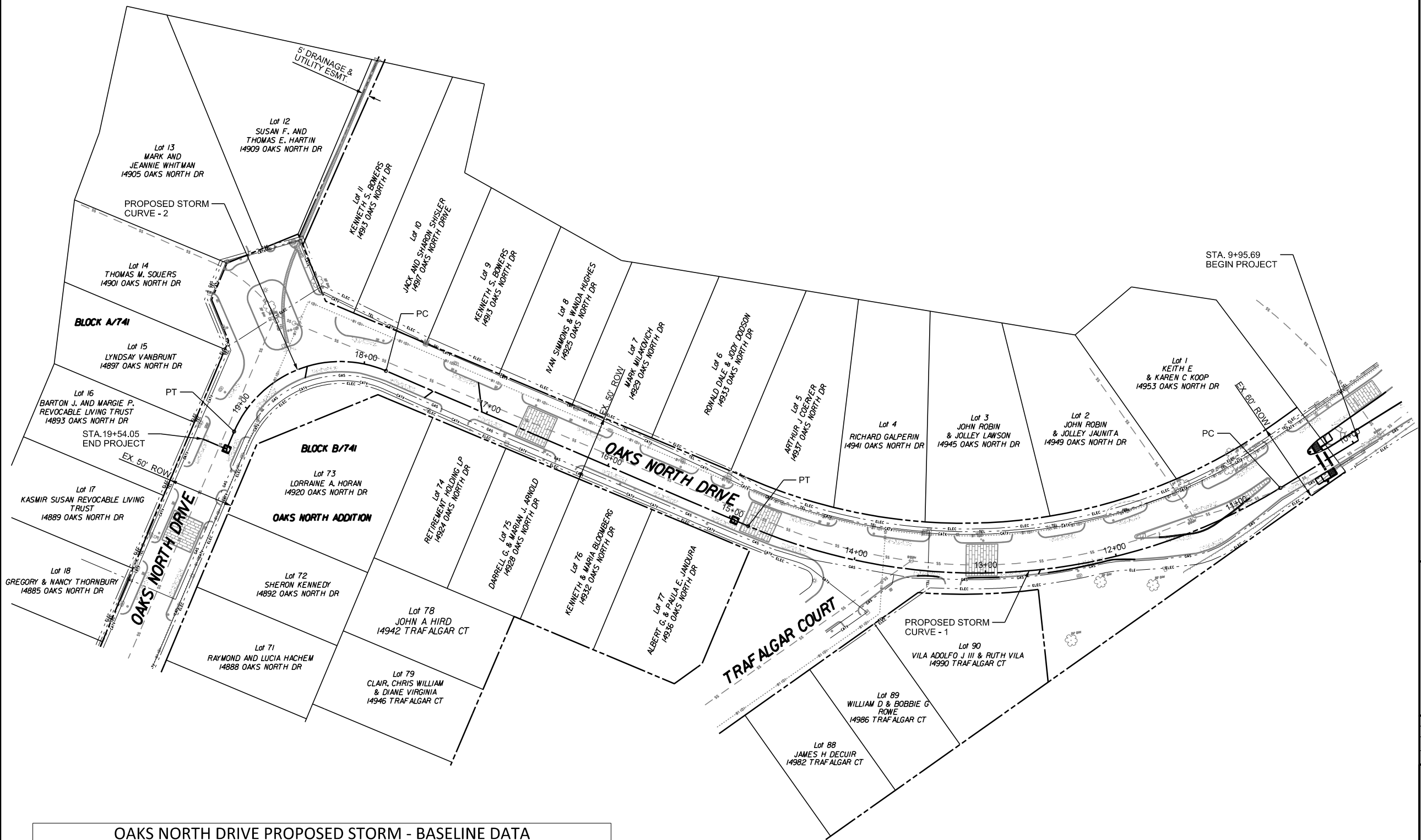
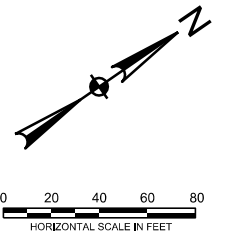


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**GENERAL NOTES
(SHEET 1 OF 1)**
**OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS**
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	GN-01	3

DATE: 11/7/2019
TIME: 12:58:39 PM
FILE NAME: N:\PROJECTS\R14285.00_Addison_2017\White Rock Drainage\07_DON0706_Sheet1428501_General_Notes-01.dgn



OAKS NORTH DRIVE PROPOSED STORM - BASELINE DATA

STATION	DESCRIPTION	NORTHING	EASTING	BEARING
9+95.69	BEGIN	7,034,680.01	2,485,862.46	S 3° 11' 46.87" W
10+64.92	PC	7,034,610.89	2,485,858.60	PROPOSED STORM CURVE-1
12+92.15	PI	7,034,384.02	2,485,845.93	PROPOSED STORM CURVE-1
14+84.42	PT	7,034,263.01	2,485,653.61	S 57° 49' 18.30" W
17+82.64	PC	7,034,104.19	2,485,401.20	PROPOSED STORM CURVE-2
18+70.14	PI	7,034,057.59	2,485,327.14	PROPOSED STORM CURVE-2
19+20.08	PT	7,033,983.53	2,485,373.74	S 32° 16' 15.31" E
19+34.57	PI	7,033,971.28	2,485,381.47	S 57° 46' 07.23" W
19+54.05	END	7,033,960.89	2,485,364.99	

OAKS NORTH DRIVE PROPOSED STORM - CURVE DATA

CURVE	PI STATION	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	PC STATION	PT STATION
PROPOSED STORM CURVE-1	12+92.15	54° 37' 31.43" (RT)	13° 01' 18.37"	227.22'	419.49'	440.00'	10+64.92	14+84.42
PROPOSED STORM CURVE-2	18+70.14	90° 00' 00.00" (LT)	65° 28' 51.21"	87.50'	137.44'	87.50'	17+82.64	19+20.08

BENCHMARKS & CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"



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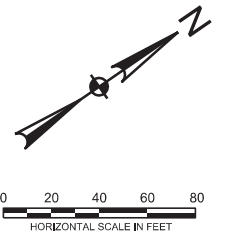
HORIZONTAL ALIGNMENT DATA (SHEET 1 OF 1)

OAKS NORTH DRIVE DRAINAGE IMPROVEMENTS

TOWN OF ADDISON, TEXAS

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CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	HORIZ. ALIGN DATA	4

DATE: 11/7/2019 TIME: 12:58:43 PM FILE NAME: N:\PROJECTS\14285_00_Addison_2017\Various Projects\14285_01_White Rock Drainage\07_DGN\076_Sheet14285_01_Horizontal_Alignment_Data.dgn



NOTES:

- CONTROL IS BASED UPON TOWN OF ADDISON PUBLISHED CONTROL POINTS COA-10 AND COA-5. SURFACE ADJUSTMENT FACTOR IS 1.000136506.
- INFORMATION SHOWN HEREON IS BASED UPON DOCUMENTS OF RECORD AND SHOULD NOT BE CONSTRUED AS BOUNDARY SURVEY.



S.K. Wendell 10/28/19
 S. Kevin Wendell, RPLS No. 5500
 Registered Professional Land Surveyor
 State of Texas

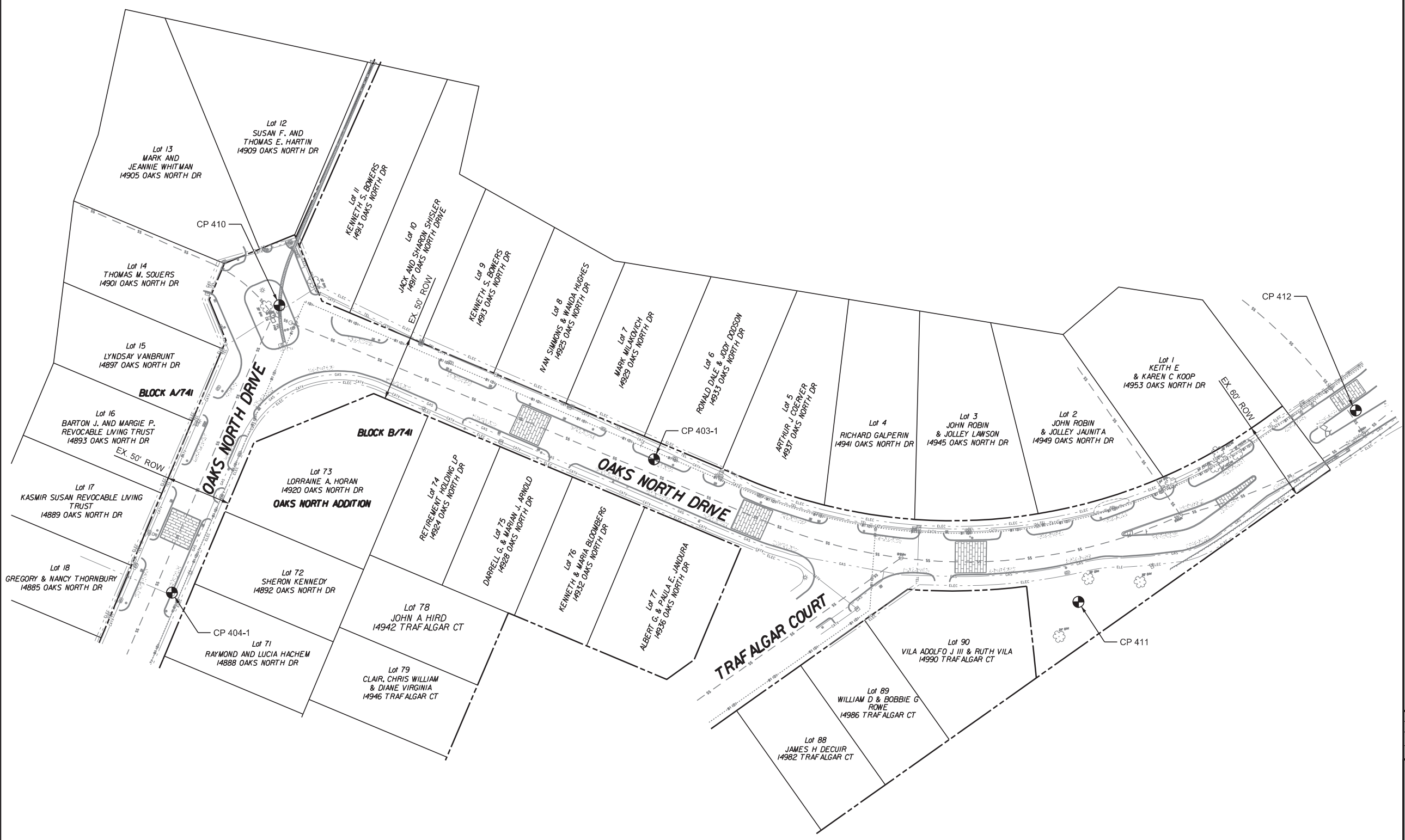
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REV NO.	DATE	DESCRIPTION	BY
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CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
 FIRM NO. F-4373

**SURVEY CONTROL AND ROW MAP
 (SHEET 1 OF 1)
 OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS
 TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	OCT 2019	AS SHOWN	R14285.01	SURVEY CONTROL	5

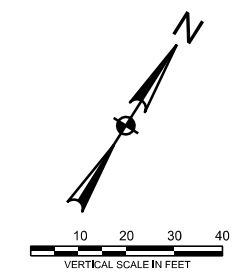
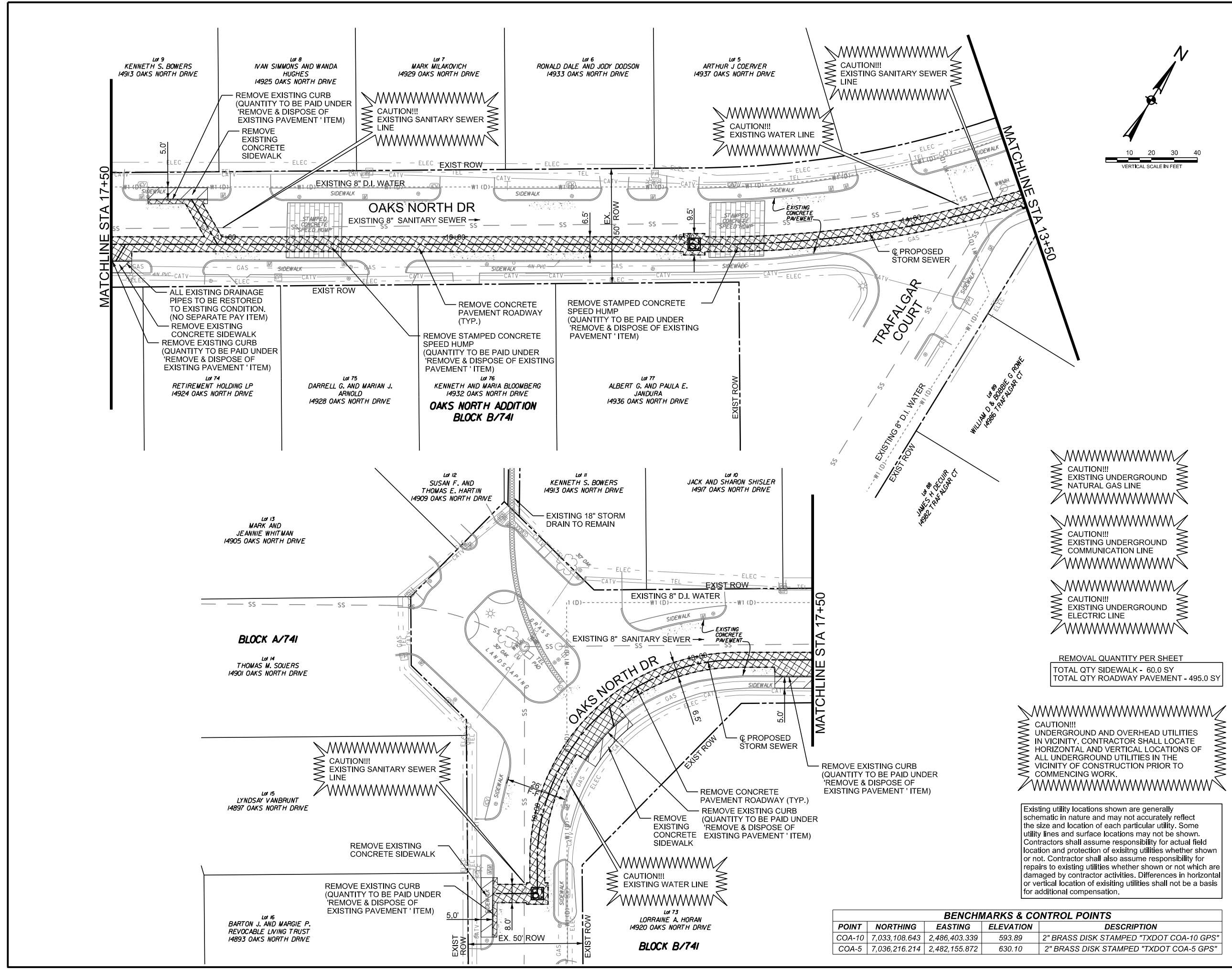


CONTROL POINT DATA						
CONTROL POINT	GRID NORTHING	GRID EASTING	SURFACE NORTHING	SURFACE EASTING	ELEVATION	DESCRIPTION
COA-10	7,032,148.713	2,486,063.976	7,033,108.643	2,486,403.339	593.89	2"BRASS DISK STAMPED TXDOT COA-10 GPS"
COA-5	7,035,255.859	2,481,817.089	7,036,216.214	2,482,155.872	630.10	2"BRASS DISK STAMPED TXDOT COA-5 GPS"
403-1	7,033,276.892	2,485,236.865	7,034,236.976	2,485,575.915	593.32	SET "X CUT"
404-1	7,032,915.274	2,485,111.076	7,033,875.309	2,485,450.309	610.83	SET "X CUT"
410	7,033,107.934	2,484,976.715	7,034,068.995	2,485,315.929	599.21	PK NAIL
411	7,033,482.181	2,485,510.935	7,034,442.294	2,485,850.222	578.45	PK NAIL
412	7,033,740.151	2,485,510.869	7,034,700.299	2,485,850.156	568.44	SET "X CUT"

GRID TO SURFACE: TXDOT DALLAS COUNTY SCALE FACTOR OF 1.000136506.
 HORIZONTAL DATA BASED ON NORTH AMERICAN DATUM OF 1983 (NAD '83).
 COORDINATES ARE ON TEXAS STATE PLANE COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202).
 VERTICAL DATUM BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88).

DATE: 10/28/2019
 TIME: 12:02:37 PM
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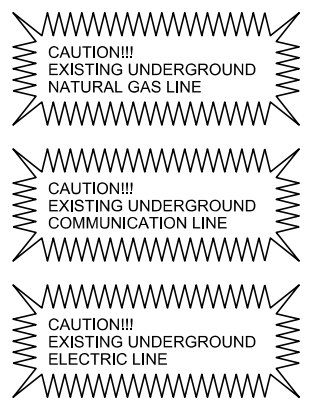
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REMOVAL LEGEND

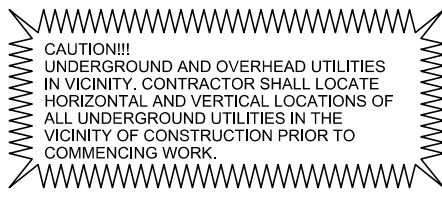
	REMOVE CONCRETE SIDEWALK
	REMOVE CONCRETE PAVEMENT, ROADWAY (FULL DEPTH)
	SAWCUT LINE (NO SEPARATE PAY ITEM)
	REMOVE MONOLITHIC CURB
	TREE
	FENCE
	LIGHT POLE
	TELEPHONE PEDESTAL
	TELEPHONE PULL BOX
	CABLE TV SPLICE BOX
	WASTEWATER MANHOLE
	WATER METER
	WATER VALVE
	IRRIGATION CONTROL DEVICE
	MAILBOX

- NOTES:**
1. REMOVAL SHALL BE PHASED AS SHOWN ON THE TRAFFIC CONTROL PLANS. SEE TRAFFIC CONTROL PLANS FOR MORE INFORMATION.
 2. ALL EXISTING TREES, LANDSCAPING, FENCING, GATES, PRIVATE SIGNS, AND RELATED APPURTENANCES THAT SHALL REMAIN OR BE RELOCATED MUST BE PROTECTED AGAINST CONSTRUCTION DAMAGES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES.
 3. ALL EXISTING FEATURES ARE BASED ON BEST AVAILABLE RECORDS AND FIELD DATA PERFORMED BY CRIADO, DATED MARCH, 2019. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING FEATURES BEFORE BEGINNING ANY CONSTRUCTION.
 4. SAWCUT EXISTING PAVEMENT AT ALL PAVEMENT REMOVAL LIMITS. ALL SAWCUTS SHALL BE FULL DEPTH. SAWCUT CONCRETE PAVEMENT INTO SMALLER PIECES AND LIFT WITH LOADER. NO JACK HAMMERING, GUILLOTINE CRUSHERS OR OTHER EQUIPMENT THAT CAUSES VIBRATORY SOIL (NO SEPARATE PAY ITEM).
 5. CONTRACTOR TO MAINTAIN MAIL SERVICE ALONG OAKS NORTH DRIVE DURING CONSTRUCTION.
 6. POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES.
 7. TOWN INSPECTOR WILL DETERMINE FINAL PAVEMENT REMOVAL LIMITS. ACTUAL LIMITS OF REMOVAL MAY VARY BASED ON SITE CONDITIONS.



REMOVAL QUANTITY PER SHEET

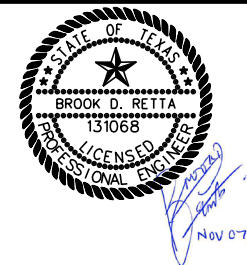
TOTAL QTY SIDEWALK - 60.0 SY
TOTAL QTY ROADWAY PAVEMENT - 495.0 SY



Existing utility locations shown are generally schematic in nature and may not accurately reflect the size and location of each particular utility. Some utility lines and surface locations may not be shown. Contractors shall assume responsibility for actual field location and protection of existing utilities whether shown or not. Contractor shall also assume responsibility for repairs to existing utilities whether shown or not which are damaged by contractor activities. Differences in horizontal or vertical location of existing utilities shall not be a basis for additional compensation.

BENCHMARKS & CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"



REVISIONS

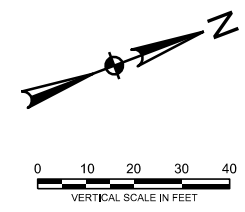
REV NO.	DATE	DESCRIPTION	BY



CRIADO
 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
 FIRM NO. F-4373

**REMOVAL PLAN
 STA. 13+50 TO END
 OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS
 TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	REM-01	6



- REMOVAL LEGEND**
- REMOVE CONCRETE SIDEWALK
 - REMOVE CONCRETE PAVEMENT, ROADWAY (FULL DEPTH)
 - SAWCUT LINE (NO SEPARATE PAY ITEM)
 - REMOVE MONOLITHIC CURB
 - TREE
 - FENCE
 - LIGHT POLE
 - TELEPHONE PEDESTAL
 - TELEPHONE PULL BOX
 - CABLE TV SPLICE BOX
 - WASTEWATER MANHOLE
 - WATER METER
 - WATER VALVE
 - IRRIGATION CONTROL DEVICE
 - MAILBOX

- NOTES:**
- REMOVAL SHALL BE PHASED AS SHOWN ON THE TRAFFIC CONTROL PLANS. SEE TRAFFIC CONTROL PLANS FOR MORE INFORMATION.
 - ALL EXISTING TREES, LANDSCAPING, FENCING, GATES, PRIVATE SIGNS, AND RELATED APPURTENANCES THAT SHALL REMAIN OR BE RELOCATED MUST BE PROTECTED AGAINST CONSTRUCTION DAMAGES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES.
 - ALL EXISTING FEATURES ARE BASED ON BEST AVAILABLE RECORDS AND FIELD DATA PERFORMED BY CRIADO, DATED MARCH, 2019. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING FEATURES BEFORE BEGINNING ANY CONSTRUCTION.
 - SAWCUT EXISTING PAVEMENT AT ALL PAVEMENT REMOVAL LIMITS. ALL SAWCUTS SHALL BE FULL DEPTH. SAWCUT CONCRETE PAVEMENT INTO SMALLER PIECES AND LIFT WITH LOADER. NO JACK HAMMERING, GUILLOTINE CRUSHERS OR OTHER EQUIPMENT THAT CAUSES VIBRATORY SOIL (NO SEPARATE PAY ITEM).
 - CONTRACTOR TO MAINTAIN MAIL SERVICE ALONG OAKS NORTH DRIVE DURING CONSTRUCTION.
 - POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES.
 - TOWN INSPECTOR WILL DETERMINE FINAL PAVEMENT REMOVAL LIMITS. ACTUAL LIMITS OF REMOVAL MAY VARY BASED ON SITE CONDITIONS.



REVISIONS

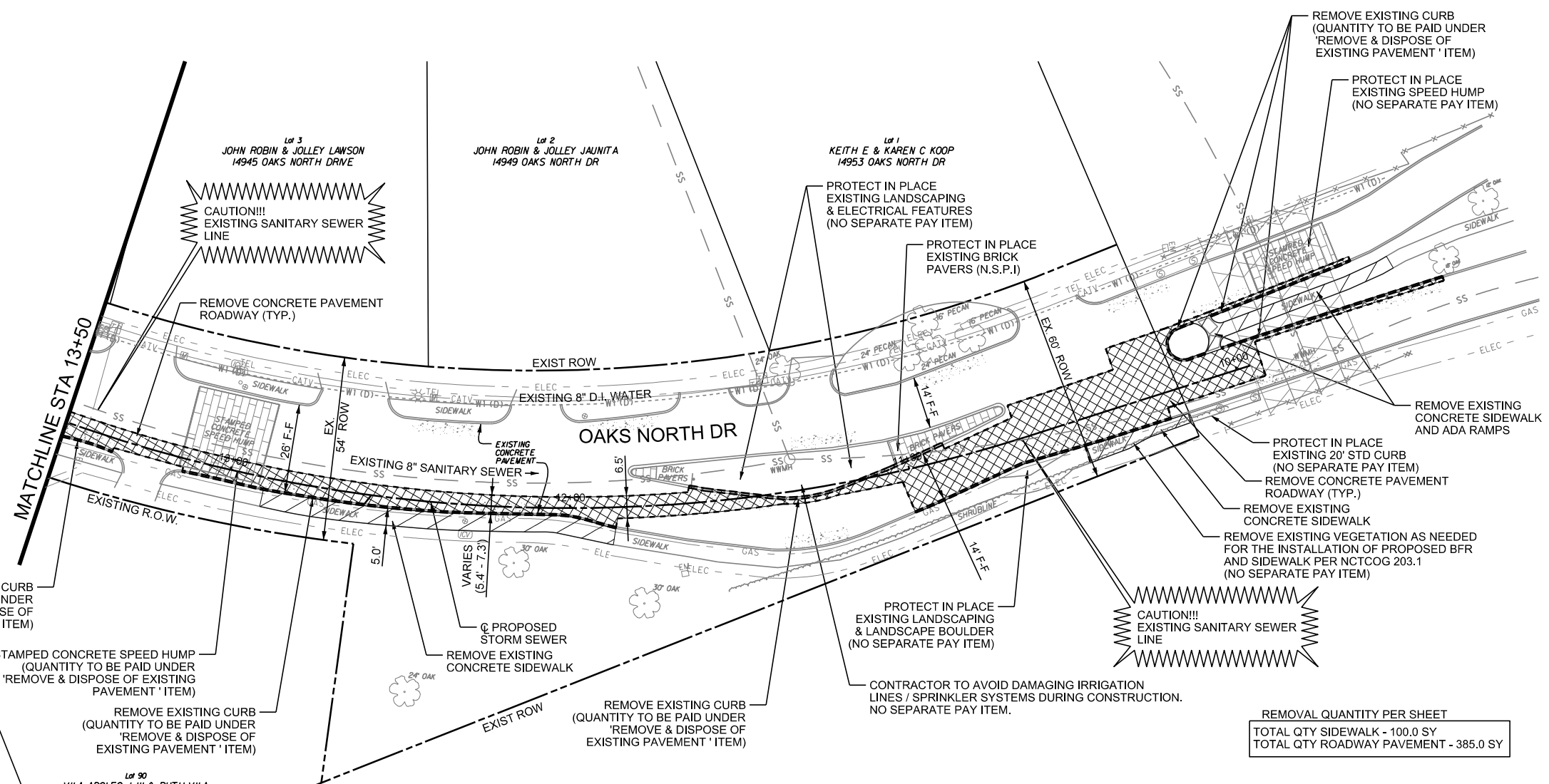
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CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
 FIRM NO. F-4373

**REMOVAL PLAN
 BEGIN TO STA. 13+50
 OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS
 TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	REM-02	7



REMOVAL QUANTITY PER SHEET
 TOTAL QTY SIDEWALK - 100.0 SY
 TOTAL QTY ROADWAY PAVEMENT - 385.0 SY

CAUTION!!!
 EXISTING UNDERGROUND
 NATURAL GAS LINE

CAUTION!!!
 EXISTING UNDERGROUND
 COMMUNICATION LINE

CAUTION!!!
 EXISTING UNDERGROUND
 ELECTRIC LINE

CAUTION!!!
 UNDERGROUND AND OVERHEAD UTILITIES
 IN VICINITY. CONTRACTOR SHALL LOCATE
 HORIZONTAL AND VERTICAL LOCATIONS OF
 ALL UNDERGROUND UTILITIES IN THE
 VICINITY OF CONSTRUCTION PRIOR TO
 COMMENCING WORK.

Existing utility locations shown are generally schematic in nature and may not accurately reflect the size and location of each particular utility. Some utility lines and surface locations may not be shown. Contractors shall assume responsibility for actual field location and protection of existing utilities whether shown or not. Contractor shall also assume responsibility for repairs to existing utilities whether shown or not which are damaged by contractor activities. Differences in horizontal or vertical location of existing utilities shall not be a basis for additional compensation.

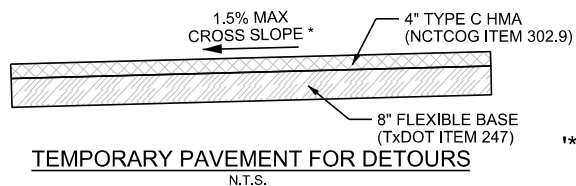
BENCHMARKS & CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"

DATE: 11/7/2019 TIME: 12:56:52 PM FILE NAME: \\s:\data\PROJECT\R14285.00_Addison_2017\Various Projects\R14285.01_White Rock Drainage\07_DGN\076_Sheets\1428501_REM_02.dgn

TRAFFIC CONTROL GENERAL NOTES

- MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL MEASURES IMPLEMENTED DURING CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), LATEST REVISION, AND THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) TRAFFIC PROJECT ENGINEERING STANDARDS BC, WZ, AND TCP.
- THESE TRAFFIC CONTROL PLANS SERVE AS A GUIDE FOR THE SEQUENCING OF CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THESE TRAFFIC CONTROL PLANS DO NOT ATTEMPT TO ADDRESS EVERY ASPECT OF CONSTRUCTION THAT IS REQUIRED OR COULD BE ENCOUNTERED DURING EACH PHASE OF CONSTRUCTION. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY OF CONSTRUCTING THE PROPOSED IMPROVEMENTS AND PROVIDING FOR THE SAFE HANDLING OF TRAFFIC AND WORKER PROTECTION DURING CONSTRUCTION.
- THE CONTRACTOR HAS THE OPTION TO PREPARE AND SUBMIT AN ALTERNATE TRAFFIC CONTROL PLAN FOR THE PROJECT. PROJECT ENGINEER TO REVIEW. THE CONTRACTOR SHALL NOT IMPLEMENT ANY SUCH ALTERNATE PLAN WITHOUT THE PRIOR WRITTEN APPROVAL OF THE PROJECT ENGINEER. THE ALTERNATE CONSTRUCTION SEQUENCE AND TRAFFIC CONTROL PLAN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS. THE CONTRACTOR WILL NOT BE COMPENSATED FOR THE DESIGN OF ALTERNATE CONSTRUCTION SEQUENCE/ TRAFFIC CONTROL PLAN WHETHER ACCEPTED OR REJECTED BY THE PROJECT ENGINEER AND ANY SUCH EFFORT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE PROJECT ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH AND INSTALL ADDITIONAL TRAFFIC CONTROL MEASURES BEYOND THAT SHOWN IN THE TRAFFIC CONTROL PLANS AS REQUIRED TO MAINTAIN SAFETY OF THE TRAVELING PUBLIC, PEDESTRIANS, AND THE CONTRACTOR DURING CONSTRUCTION. ANY SUCH ADDITIONAL TRAFFIC CONTROL MEASURES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE CONTRACTOR SHALL ENSURE THAT ALL IMPLEMENTED TRAFFIC CONTROL MEASURES ARE MAINTAINED IN A CLEAN AND FUNCTIONAL CONDITION AT ALL TIMES, INCLUDING MAINTENANCE DUE TO ACTS OF VANDALISM OR ACCIDENT. THE CONTRACTOR SHALL HAVE ADEQUATE REPLACEMENT TRAFFIC CONTROL DEVICES AVAILABLE, AT ALL TIMES, TO REPLACE THOSE SO DAMAGED.
- IN ADDITION TO THE ONES SHOWN ON THE TRAFFIC CONTROL PLANS, THE CONTRACTOR SHALL HAVE TRAILER MOUNTED FLASHING ARROW PANELS AVAILABLE (IN WORKING ORDER) AT ALL TIMES AT THE PROJECT. TO BE USED WHEN NEEDED AS DIRECTED BY THE PROJECT ENGINEER. TRAILER MOUNTED FLASHING ARROW PANELS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- FLAGGER CONTROL SHALL BE IMPLEMENTED WHEN REQUIRED BY THE STANDARDS OR AS DIRECTED BY THE PROJECT ENGINEER TO PROVIDE FOR THE SAFE HANDLING OF TRAFFIC DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. FLAGGER CONTROL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE CONTRACTOR SHALL IMPLEMENT TRAFFIC CONTROL MEASURES AS REQUIRED BY THE TMUTCD, LATEST EDITION, AND AS DIRECTED BY THE PROJECT ENGINEER TO GUIDE AND DIRECT PEDESTRIANS THROUGH, OR AROUND, AS APPLICABLE, THE VARIOUS CONSTRUCTION ZONES. PEDESTRIAN ROUTES SHALL BE ADEQUATELY FENCED OFF OR SEPARATED FROM UTILITY WORK ZONES TO PREVENT PEDESTRIAN ACCESS TO POTENTIALLY DANGEROUS AREAS. SUCH TRAFFIC CONTROL MEASURES REQUIRED TO MEET THESE PROVISIONS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE CONTRACTOR SHALL INSTALL APPROPRIATE CHANNELIZING DEVICES, AT SPACING SPECIFIED BY THE TMUTCD FOR THE POSTED SPEED INDICATED. CHANNELIZING DEVICES SHALL BE PLACED ALONG THE LIMITS OF CONSTRUCTION ZONE AND TRAVEL WAYS TO DELINEATE ONGOING CONSTRUCTION OPERATIONS AND TO PROVIDE FOR THE SAFE HANDLING OF TRAFFIC DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. SUCH CHANNELIZING DEVICES SHALL BE LOCATED ALONG THE PERIMETER OF THE CONSTRUCTION ZONE AND SHALL NOT BE PLACED WITHIN TRAVEL LANES THAT ARE SCHEDULED TO REMAIN OPEN. SUCH TRAFFIC CONTROL MEASURES PROVIDED TO MEET THESE REQUIREMENTS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE CONTRACTOR SHALL NOTIFY LOCAL POLICE AND FIRE DEPARTMENT OFFICIALS OF IMPENDING CONSTRUCTION PHASE TRAFFIC SHIFTS AND LANE CLOSURES TWO WORKING DAYS PRIOR TO SHIFTS OR CLOSURES.
- THE CONTRACTOR SHALL INSTALL SAFETY FENCING AND SHORING MEASURES OF THE SIZE AND TYPE REQUIRED BY FEDERAL AND STATE REGULATIONS AROUND ALL OPEN EXCAVATIONS AT THE END OF EACH WORK DAY AND WHEN WORKERS ARE PRESENT OR ABSENT FROM THE OPEN EXCAVATIONS, OR AS DIRECTED BY THE PROJECT ENGINEER. SUCH FENCING SHALL NOT OBSTRUCT VISION LINES OF THE TRAVELING PUBLIC. ANY SUCH CONSTRUCTION FENCING REQUIRED TO MEET THIS PROVISION SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING TEMPORARY DRAINAGE THROUGHOUT THE PROJECT LIMITS DURING ALL CONSTRUCTION PHASES TO ENSURE SAFE ROAD CONDITIONS AND PREVENT FLOODING OF PROPERTIES AND IMPROVEMENTS ADJACENT TO THE PROJECT AREA. SUCH WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- THE CONTRACTOR SHALL COMPLETELY REMOVE EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE TRAFFIC CONTROL PLANS OR THE INTENT THEREOF. METHODS FOR THE REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE APPROVED BY THE PROJECT ENGINEER PRIOR TO THE CONTRACTOR COMMENCING ANY REQUIRED REMOVAL OF EXISTING PAVEMENT MARKINGS. THE PAVEMENT MARKINGS SHALL BE REMOVED BY ANY METHOD THAT DOES NOT MATERIALLY DAMAGE THE SURFACE OR TEXTURE OF THE PAVEMENT. PAVEMENT MARKING REMOVAL BY OVER-PAINTING IS PROHIBITED. SUCH MEASURES SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- AFTER INSTALLATION OF DRAINAGE STRUCTURES, STORM SEWERS, PUBLIC OR PRIVATE UTILITY FACILITY BY OPEN CUT BENEATH EXISTING PAVEMENTS CARRYING TRAFFIC DURING CONSTRUCTION, THE PAVEMENT SHALL BE RESTORED TO PROVIDE STRUCTURALLY SOUND SUPPORT AND SATISFACTORY RIDING SURFACE, PRIOR TO RE-OPENING ROADWAY TO TRAFFIC.
- THE CONTRACTOR SHALL COVER OR TEMPORARILY REMOVE EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLANS OR THE INTENT THEREOF. EXISTING SIGNS THAT DO NOT CONFLICT WITH THE TRAFFIC CONTROL PLANS OR THE INTENT THEREOF BUT REQUIRE RELOCATION DUE TO PHYSICAL CONFLICTS SHALL NOT BE RELOCATED UNTIL THE TEMPORARY SIGN SUPPORTS HAVE BEEN INSTALLED TO ALLOW FOR THE IMMEDIATE RELOCATION OF SUCH SIGNS. SUCH MEASURES SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- ALL TRAFFIC CONTROL DEVICES THAT ARE NOT REQUIRED FOR ONGOING CONSTRUCTION OPERATIONS SHALL BE REMOVED WHEN NOT NEEDED. WHEN WORK IS SUSPENDED FOR SHORT OR EXTENDED PERIODS, ADVANCE WARNING, REGULATORY, AND/OR GUIDE SIGNS THAT ARE NO LONGER APPROPRIATE FOR THE PRESENT CONDITIONS SHALL BE REMOVED FROM THE WORK AREA OR COVERED SO THEY ARE NOT VISIBLE TO THE TRAVELING PUBLIC.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS AT ALL TIMES DURING CONSTRUCTION OF ALL OPERATIONAL SERVICES SUCH AS TRASH COLLECTION, POSTAL SERVICE, UTILITY METER READING, ETC. TO PREVENT INTERRUPTION OR DELAYS OF THE RESPECTIVE SERVICES. ACCESS TO PROPERTY ALONG THE CORRIDOR SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE CONSTRUCTION DURATION. THIS MAINTENANCE SHALL BE COORDINATED WITH WITH THE PROJECT ENGINEER AND SHALL NOT BE PAID FOR SEPARATELY AND SHALL BE CONSIDERED SUBSIDIARY TO THE CONTRACT.
- WORK ZONE PAVEMENT MARKINGS SHALL BE INSTALLED PER TXDOT WZ TRAFFIC PROJECT ENGINEERING STANDARD SHEETS. WORK ZONE MARKINGS AND MATERIALS SHALL BE INSTALLED PER TXDOT ITEM 662.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONDITION OF TEMPORARILY REMOVED EXISTING SIGNS. REMOVED SIGNS MUST BE IN SAME OR BETTER CONDITION WHEN REINSTALLED.
- THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ANY LOCAL STAGING AREA (IF AVAILABLE) WITH THE TOWN PRIOR TO IMPLEMENTATION.
- IF ANY EXISTING UTILITIES ARE ENCOUNTERED DURING OPERATIONS AND DAMAGED THAT RESULTS IN A LOSS OF THE UTILITY TO THE RESIDENTS THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE TOWN AND REPAIR THE DAMAGE AS SOON AS POSSIBLE TO THE SATISFACTION OF THE TOWN OR THE PROJECT ENGINEER. ANY DAMAGE REPAIR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR MUST MAINTAIN AN ADA AND TAS COMPLIANT PATH TO HOMES WITHIN THE WORK AREA.
- THE CONTRACTOR MUST MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.
- THE CONTRACTOR SHALL LIMIT DRIVEWAY CLOSURES AND BACKFILL / PLATE TRENCHES IN FRONT OF DRIVEWAYS TO MAINTAIN ACCESS AFTER HOURS OF OPERATION.



TEMPORARY PAVEMENT FOR DETOURS
N.T.S.

NOTE:
1. TO BE PAID BY 'TEMPORARY PAVEMENT'
BID ITEM - MEASURED BY SY.

*** ADJUST SLOPE DIRECTION AS NECESSARY TO PROVIDE POSITIVE DRAINAGE AT ALL TIMES.

SUGGESTED TRAFFIC CONTROL NARRATIVE

PRIOR TO START OF CONSTRUCTION:
INSTALL TEMPORARY EROSION CONTROL ELEMENTS.
NOTIFY PROPERTY OWNERS OF CONSTRUCTION OPERATIONS A MINIMUM OF 24 HOURS IN ADVANCE.

PHASE 1 CONSTRUCTION

LOWER EXISTING WATER MAIN AT CROSSINGS WITH PROPOSED STORM SEWER MAIN. NOTIFY PROPERTY OWNERS OF INTERMITTENT WATER SHUTDOWNS.

PHASE 2 CONSTRUCTION

INSTALL ADVANCE WARNING SIGNS AND ALL TEMPORARY SIGNS AND TRAFFIC CONTROL DEVICES AS PER NOTE 2.

CONSTRUCT PROPOSED STORM SEWER GENERALLY CONTAINED WITHIN THE NORTHBOUND LANE OF OAKS NORTH DRIVE FROM STATION 10+40 TO END OF PROJECT AS SHOWN IN PHASING PLAN. SAWCUT, REMOVE, AND RECONSTRUCT PAVEMENT AS PER PLAN DETAILS. TEMPORARY PAVEMENT FOR TRENCH REPAIRS SHALL BE UTILIZED UNTIL PERMANENT PAVEMENT CAN BE PLACED. INLET INSTALLATION WILL REQUIRE SIDEWALK REMOVAL AND RECONSTRUCTION COINCIDENT WITH THE LIMITS OF CURB REMOVAL AND RECONSTRUCTION. SIDEWALK SHALL BE RECONSTRUCTED TO MATCH EXISTING FINISH. AT THE CONCLUSION OF DAILY OPERATIONS, ALL OPEN TRENCH SHALL BE COVERED. IF IN CONFLICT WITH PROPOSED STORM SEWER, EXISTING WASTEWATER SERVICES SHALL BE RECONSTRUCTED.

CONTRACTOR TO PROVIDE ONE LANE, TWO-WAY TRAFFIC CONTROL WITH FLAGGERS AND ROAD TO BE OPEN TO NORMAL OPERATION AT THE END OF EACH WORK DAY DURING THIS CONSTRUCTION PHASE. MAINTAIN MINIMUM OF ONE 10-FOOT TRAVEL LANE AT ALL TIMES.

PHASE 3 CONSTRUCTION

INSTALL ADVANCE WARNING SIGNS AND ALL TEMPORARY SIGNS AND TRAFFIC CONTROL DEVICES AS PER NOTE 2.

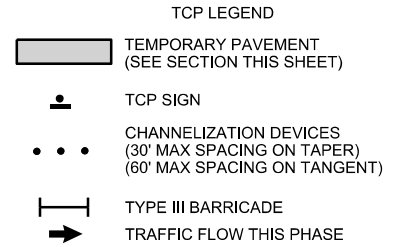
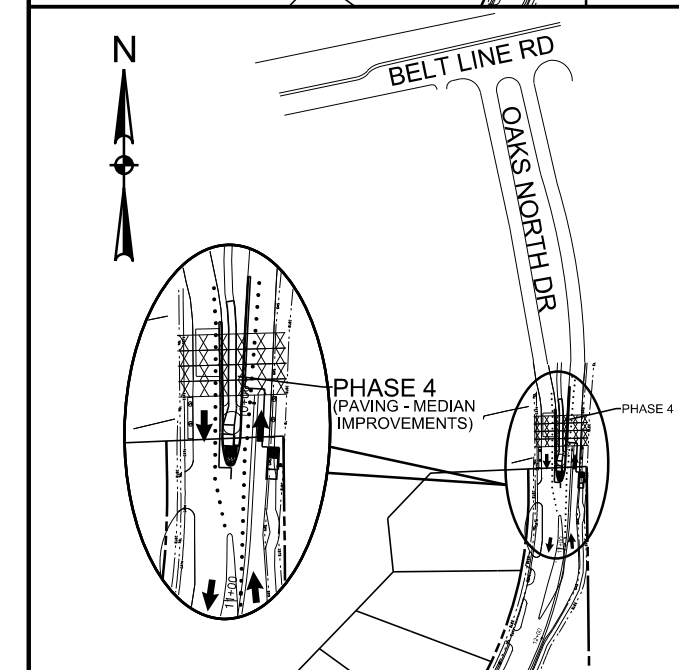
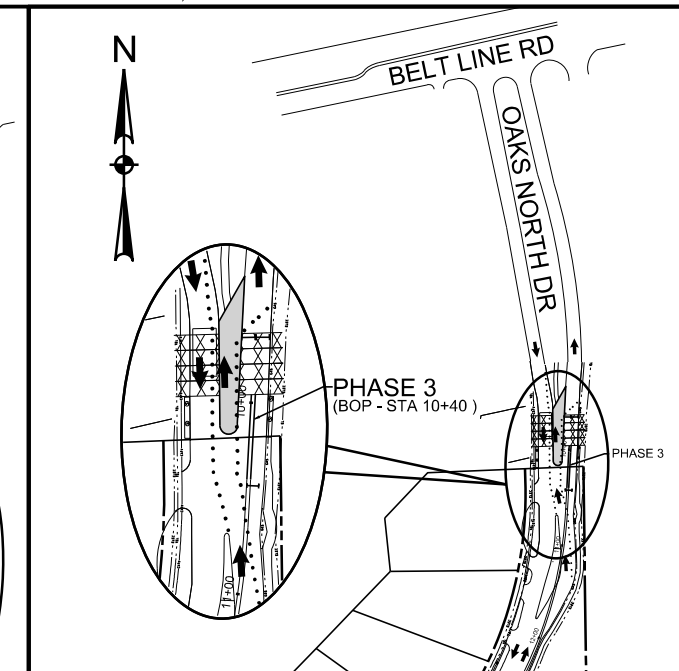
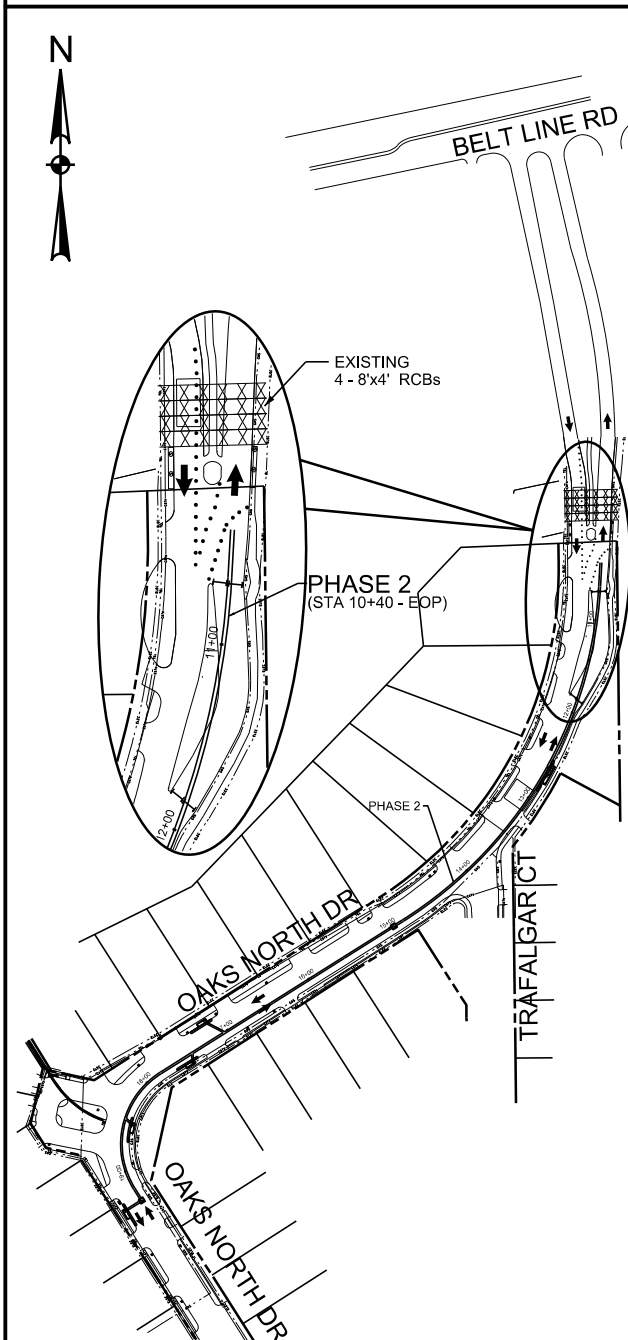
REMOVE EXISTING MEDIAN & CONSTRUCT TEMPORARY PAVEMENT AT SOUTH END OF DIVIDED ROADWAY SECTION, JUST SOUTH OF BELT LINE ROAD, TO MAINTAIN ACCESS TO / FROM BELT LINE ROAD. SEE 'TEMPORARY PAVEMENT FOR DETOURS' SECTION THIS SHEET.

CONSTRUCT PROPOSED STORM SEWER GENERALLY CONTAINED WITHIN THE NORTHBOUND LANE OF OAKS NORTH DRIVE FROM BEGINNING OF PROJECT TO STATION 10+40 AS SHOWN IN PHASING PLAN. SAWCUT, REMOVE, AND RECONSTRUCT PAVEMENT PER PLAN DETAILS. TEMPORARY PAVEMENT FOR TRENCH REPAIRS SHALL BE UTILIZED UNTIL PERMANENT PAVEMENT CAN BE PLACED. AT THE CONCLUSION OF DAILY OPERATIONS, ALL OPEN TRENCH SHALL BE COVERED. MAINTAIN MINIMUM OF ONE 10-FOOT TRAVEL LANE AT ALL TIMES.

PHASE 4 CONSTRUCTION

INSTALL ADVANCE WARNING SIGNS AND ALL TEMPORARY SIGNS AND TRAFFIC CONTROL DEVICES AS PER NOTE 2.

REMOVE TEMPORARY PAVEMENT FOR DETOURS. CONSTRUCT MEDIAN AND RAMP IMPROVEMENTS, AS SHOWN IN PHASING PLAN.



NOTES:

- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ADJACENT TO CONSTRUCTION. COORDINATE ACCESS WITH ALL PROPERTY OWNERS.
- ALL TRAFFIC CONTROL DEVICES SHALL BE TXDOT APPROVED AND SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER AND APPLICABLE TXDOT STANDARDS.
- ANY DEVIATION FROM THE PLAN SHALL REQUIRE THE APPROVAL OF THE PROJECT ENGINEER.
- THE CONTRACTOR SHALL INSTALL AND REMOVE TEMPORARY PAVEMENT AS REQUIRED TO MAINTAIN A SMOOTH DRIVING SURFACE FROM PROPOSED PAVEMENT TO EXISTING PAVEMENT TO THE SATISFACTION OF THE ENGINEER.
- THE CONTRACTOR SHALL LEAVE NO OPEN TRENCHES AT THE END OF THE WORK DAY.
- THE CONTRACTOR MUST MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.
- ALL ITEMS NECESSARY TO IMPLEMENT TRAFFIC CONTROL FOR CONSTRUCTION SHALL BE SUBSIDIARY TO THE 'TRAFFIC CONTROL' PAY ITEM, UNLESS OTHERWISE NOTED.



REVISIONS			
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2			



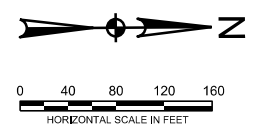
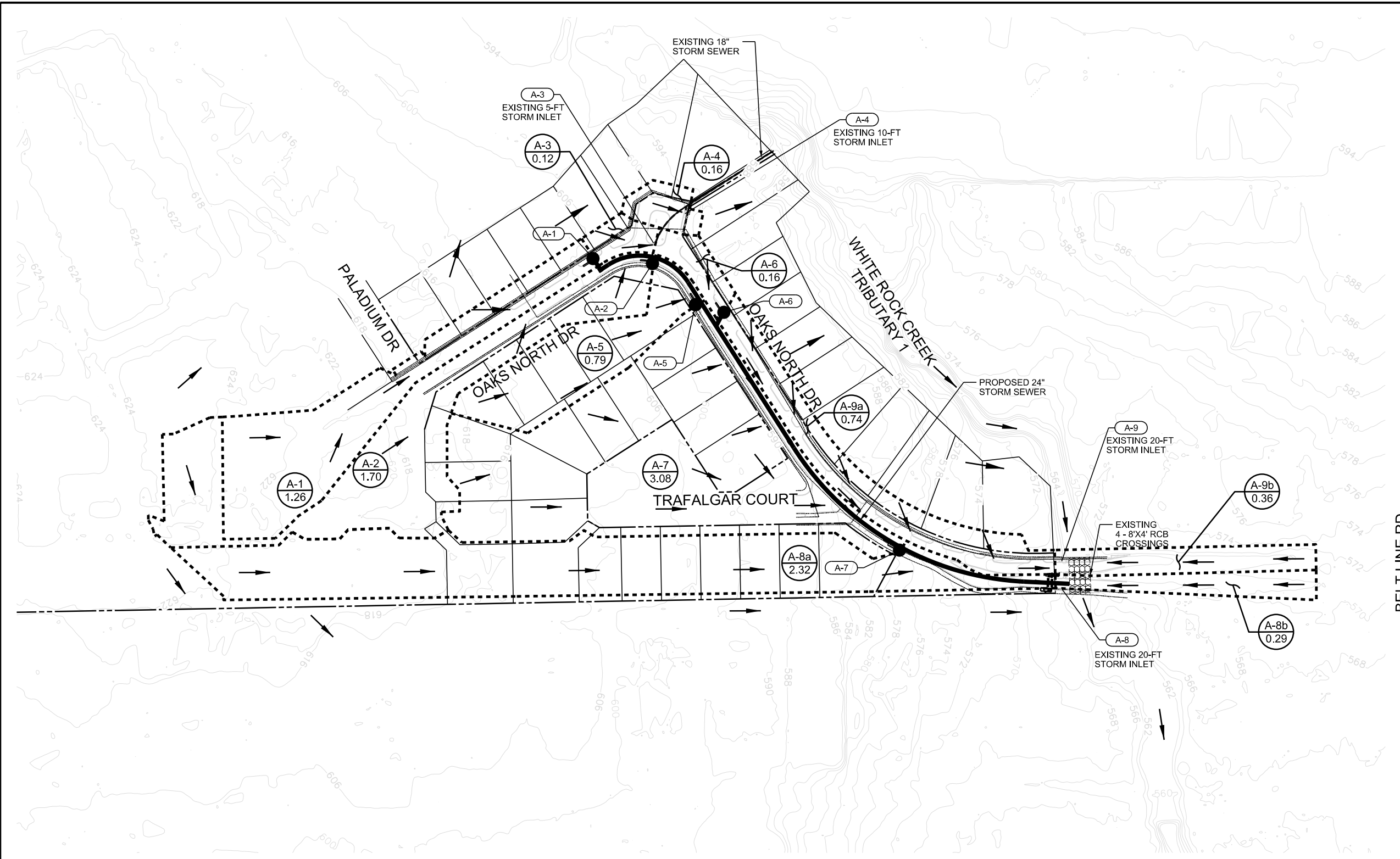
CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

**TRAFFIC CONTROL PLAN
NARRATIVE AND OVERALL PHASING PLAN
OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	TCP-01	8

DATE: 11/7/2019 TIME: 1:00:06 PM FILE NAME: N:\PROJECTS\R14285.00_Addison_2017\Various Projects\R14285.01_White_Rock_Drainage\07_DON076_Sheet\1428501_TCP-01.dgn

DATE: 11/7/2019
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LEGEND

- MAJOR DRAINAGE DIVIDE
- FLOW DIRECTION
- EX. CONTOUR
- XXX DESIGN POINT
- X
X DRAINAGE AREA LABEL
AREA (ACRES)
- EXISTING STORM SEWER
- PROPOSED STORM SEWER

NOTES:

1. CONTOURS SHOWN AS PROVIDED BY CITY GIS.

BELT LINE RD



REVISIONS

REV NO.	DATE	DESCRIPTION	BY
1			
2			



CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
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DRAINAGE AREA MAP

**OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS
 TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DAM-01	9

DRAINAGE AREA	AREA (AC)	C	PROPOSED 100-YEAR DRAINAGE AREA CALCULATION TABLE					COMMENTS
			T _r (MIN)	I ₁₀ (IN/HR)	Q ₁₀ (CFS)	I ₁₀₀ (IN/HR)	Q ₁₀₀ (CFS)	
A-1	1.26	0.60	15.00	5.59	4.23	7.99	6.04	SINGLE FAMILY
A-2	1.70	0.60	15.00	5.59	5.70	7.99	8.15	SINGLE FAMILY
A-3	0.12	0.60	15.00	5.59	0.40	7.99	0.58	SINGLE FAMILY
A-4	0.16	0.60	15.00	5.59	0.54	7.99	0.77	SINGLE FAMILY
A-5	0.79	0.60	15.00	5.59	2.65	7.99	3.79	SINGLE FAMILY
A-6	0.16	0.60	15.00	5.59	0.54	7.99	0.77	SINGLE FAMILY
A-7	3.08	0.60	15.00	5.59	10.33	7.99	14.76	SINGLE FAMILY
A-8a	2.32	0.60	15.00	5.59	7.78	7.99	11.12	SINGLE FAMILY
A-8b	0.29	0.60	15.00	5.59	0.97	7.99	1.39	SINGLE FAMILY
A-9a	0.74	0.60	15.00	5.59	2.48	7.99	3.55	SINGLE FAMILY
A-9b	0.36	0.60	15.00	5.59	1.21	7.99	1.73	SINGLE FAMILY

SUMP CURB INLET CALCULATION:																			
INLET		D.A.	RUNOFF COEFFICIENT	SIZE	T _c	RAIN INTENSITY	Q	UPSTREAM BYPASS	ACTUAL DISCHARGE	STREET SLOPE	STREET WIDTH (F-F)	GUTTER DEPTH OF FLOW	SPREAD	FULL GUTTER FLOW CAPACITY	INLET DEPRESSION	CAPTURE PER FOOT OF INLET WITH 100%	REQUIRED INLET LENGTH	ACTUAL INLET LENGTH	REMARKS
ID	LOCATION	NO.	C	ACRES	MIN	IN/HR	CFS	CFS	Q+BYPASS CFS	s FT/FT	FT	y FT	z*y FT	CFS	a FT	qL CFS/FT	L _r FT	L FT	
A-4	-	A-4	0.60	0.16	15.00	7.99	0.77	0.00	0.77	0.0500	26.0	0.16	2.36	58.00	0.33	1.69	0.45	10	
A-8	-	A-8a & A-8b	0.60	2.61	15.00	7.99	12.51	0.52	13.02	0.0168	14.0	0.41	13.98	31.66	0.33	2.08	6.28	20	EXIST. 20' STD. CURB INLET
A-9	-	A-9a & A-9b	0.60	1.10	15.00	7.99	5.27	0.00	5.27	0.0200	14.0	0.29	9.38	33.88	0.33	1.90	2.78	20	EXIST. 20' STD. CURB INLET

ON-GRADE CURB INLET CALCULATION:																							
INLET		D.A.	RUNOFF COEFFICIENT	SIZE	T _c	RAIN INTENSITY	Q	UPSTREAM BYPASS	ACTUAL DISCHARGE	STREET SLOPE	STREET WIDTH	GUTTER DEPTH OF FLOW	SPREAD	FULL GUTTER FLOW CAPACITY	INLET DEPRESSION	CAPTURE PER FOOT OF INLET WITH 100%	REQUIRED INLET LENGTH	ACTUAL INLET LENGTH	L/L _r	ACTUAL INLET INTERCEPTION	BYPASS FLOW	CARRYOVER TARGET	REMARKS
ID	LOCATION	NO.	C	ACRES	MIN	IN/HR	CFS	CFS	Q+BYPASS CFS	s FT/FT	FT	y FT	z*y FT	CFS	a FT	qL CFS/FT	L _r FT	L FT		CFS	CFS		
A-1	19+54.05, 3.50' LT	A-1	0.60	1.26	15.00	7.99	6.04	0.00	6.04	0.0535	26.0	0.25	8.03	60.00	0.33	0.55	10.95	10	0.91	5.96	0.07	A-3	
A-2	18+52.06, 8.15' LT	A-2	0.60	1.70	15.00	7.99	8.15	0.00	8.15	0.0650	26.0	0.28	8.51	68.00	0.33	0.57	14.22	10	0.70	7.23	0.92	A-5	PROP. 10' STD. CURB INLET
A-3	-	A-3	0.60	0.12	15.00	7.99	0.58	0.07	0.65	0.0650	26.0	0.12	2.89	68.00	0.33	0.43	1.51	5	3.31	0.65	0.00	N/A	EXIST. 5' STD. CURB INLET
A-5	17+51.51, 7.42' LT	A-5	0.60	0.79	15.00	7.99	3.79	0.92	4.70	0.0125	26.0	0.26	12.17	30.00	0.33	0.56	8.39	10	1.19	4.70	0.00	N/A	PROP. 10' STD. CURB INLET
A-6	17+18.49, 19.64' RT	A-6	0.60	0.16	15.00	7.99	0.77	0.00	0.77	0.0075	26.0	0.17	5.26	22.00	0.33	0.48	1.61	10	6.22	0.77	0.00	N/A	PROP. 10' STD. CURB INLET
A-7	12+68.81, 3.29' LT	A-7	0.60	3.08	15.00	7.99	14.76	0.00	14.76	0.0600	26.0	0.33	11.98	64.00	0.33	0.62	23.67	20	0.84	14.24	0.52	A-8	PROP. 20' STD. CURB INLET



Nov 07, 2019

REVISIONS

REV NO.	DATE	DESCRIPTION	BY
1			
2			



CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

INLET CALCULATIONS
(SHEET 1 OF 1)

OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS

TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	CALCS-01	10

Oaks North Drive - 100-Year Frequency Hydraulic Calculations

FROM	TO	PIPE LENGTH FT	DRAINAGE AREA			RUNOFF "C"	INC. Ca	TOTAL CA	TIME OF CONCENTRATION			100-YEAR INTENSITIES IN/HR	Q ₁₀₀ RUNOFF CFS	PIPE SIZE IN	Sf ft/ft	HGL		V1 (IN) FPS	V2 (OUT) FPS	Jump Calculation	DESIGN HGL	INVERT ELEV.		T/C OR RIM ELEV	REMARKS	
			INCREMENTAL AREA NO.	AREA AC	TOTAL AREA AC				INLET TIME MIN	TRAVEL TIME MIN	TOTAL TIME MIN					D/S ELEV	U/S ELEV					FROM	TO			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
SD LINE A																										
19+34.57	19+54.05	19.48	A-1	1.24	1.24	0.60	0.75	0.75	15.00	0.13	15.13	7.99	5.96	21	0.0014	600.53	601.75	0.00	2.48	0.12	601.75	598.78	600.00	605.00	INLET A-1	
18+51.36	19+34.57	83.21			1.24		0.00	0.75	15.13	0.56	15.69	7.99	5.96	21	0.0014	595.12	600.53	2.48	2.48	0.07	600.53	593.37	598.78	-	4'x4' SD MH	
18+43.47	18+51.36	7.89			1.24		0.00	0.75	15.69	0.05	15.74	7.99	5.96	21	0.0014	594.60	595.12	2.48	2.48	0.05	595.12	592.85	593.37	-	CONDUIT ON CURVE	
18+00.00	18+43.47	43.47	A-2	1.51	2.75	0.60	0.91	1.65	15.74	0.13	15.88	7.99	13.20	21	0.0069	591.78	594.60	2.48	5.49	0.43	594.60	590.03	592.85	-	60D WYE, LAT A-2	
17+43.73	18+00.00	56.27			2.75		0.00	1.65	15.88	0.17	16.05	7.99	13.20	21	0.0069	590.99	591.78	5.49	5.49	0.00	591.78	589.24	590.03	-	GRADE BREAK	
17+03.64	17+43.73	40.09	A-5	0.98	3.73	0.60	0.59	2.24	16.05	0.09	16.14	7.78	17.43	21	0.0121	590.43	590.99	5.49	7.25	0.61	590.99	588.68	589.24	-	60D WYE, LAT A-5	
14+95.69	17+03.64	207.95	A-6	0.16	3.89	0.60	0.10	2.34	16.14	0.46	16.60	7.78	18.17	21	0.0132	587.52	590.43	7.25	7.56	0.54	590.43	585.77	588.68	-	60D WYE, LAT A-6	
13+80.00	14+95.69	115.69			3.89		0.00	2.34	16.60	0.26	16.85	7.78	18.17	21	0.0132	582.89	587.52	7.56	7.56	0.38	587.52	581.14	585.77	-	4'x4' SD MH	
12+74.67	13+80.00	105.33			3.89		0.00	2.34	16.85	0.23	17.08	7.78	18.17	21	0.0132	575.52	582.89	7.56	7.56	0.00	582.89	573.77	581.14	-	GRADE BREAK	
12+62.25	12+74.67	12.42			3.89		0.00	2.34	17.08	0.03	17.11	7.58	17.71	21	0.0125	574.65	575.52	7.56	7.36	0.36	575.52	572.90	573.77	-	CONDUIT ON CURVE	
12+58.25	12+62.25	4.00			3.89		0.00	2.34	17.11	0.01	17.12	7.58	17.71	24	0.0061	574.44	574.65	7.36	5.64	0.08	574.65	572.44	572.65	-	'Begin 21" RCP, End 24" RCP	
10+90.00	12+58.25	168.25	A-7	2.97	6.87	0.60	1.78	4.12	17.12	0.28	17.41	7.58	31.23	24	0.0191	569.96	574.44	5.64	9.94	1.32	574.44	563.60	572.44	-	60D WYE, LAT A-7	
9+95.69	10+90.00	94.31			6.87		0.00	4.12	17.41	0.16	17.56	7.58	31.23	24	0.0191	568.06	569.96	9.94	9.94	0.00	569.96	561.86	563.60	-	GRADE BREAK	
																					568.06				OUTFALL, 4 - 8'x4' RCBs	
LAT A-2																										
0+00.00	0+09.15	9.15	A-2	1.51	1.51	0.60	0.91	0.91	15.00	0.04	15.04	7.99	7.23	18	0.0047	594.60	594.90	0.00	4.09	0.33	594.90	592.98	593.40	598.40	INLET A-2	
																					594.60					CONNECT TO SD LINE A
LAT A-5																										
0+00.00	0+08.56	8.56	A-5	0.98	0.98	0.60	0.59	0.59	15.00	0.05	15.05	7.99	4.70	18	0.0020	590.99	591.01	0.00	2.66	0.14	591.15	589.37	589.50	594.50	INLET A-5	
																					590.99					CONNECT TO SD LINE A
LAT A-6																										
0+00.00	0+22.70	22.70	A-6	0.16	0.16	0.60	0.10	0.10	15.00	0.87	15.87	7.99	0.77	18	0.0001	590.43	590.70	0.00	0.43	0.00	590.70	588.80	589.20	594.20	INLET A-6	
																					590.43					CONNECT TO SD LINE A
LAT A-7																										
0+00.00	0+03.77	3.77	A-7	2.97	2.97	0.60	1.78	1.78	15.00	0.01	15.01	7.99	14.24	18	0.0184	574.44	575.60	0.00	8.06	1.26	575.60	572.69	574.10	579.60	INLET A-7	
																					574.44					CONNECT TO SD LINE A



Nov 07, 2019

REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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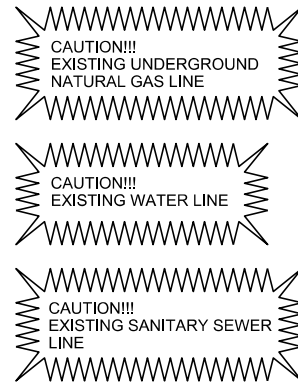
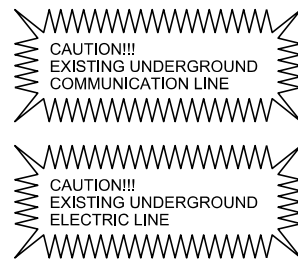


CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

HYDRAULIC CALCULATIONS
(SHEET 1 OF 1)
OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	CALCS-02	11

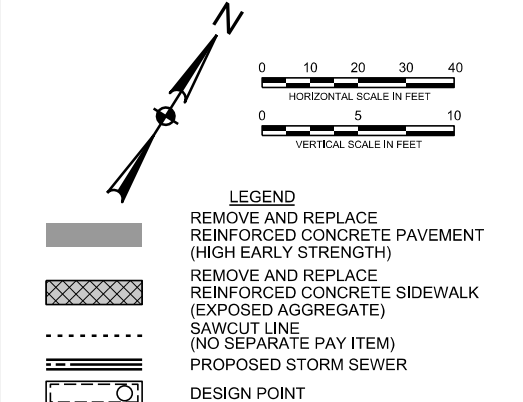
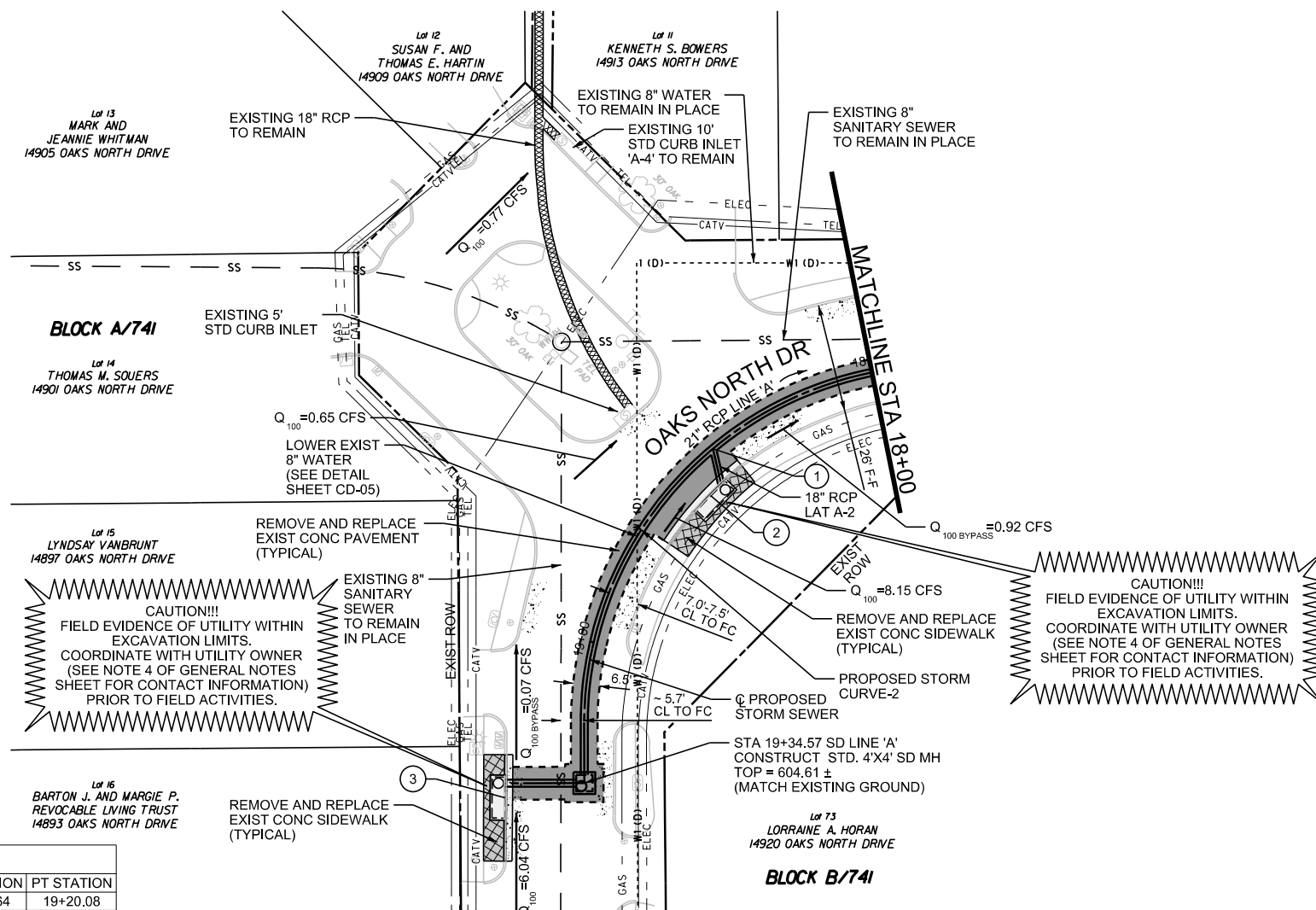
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- 1 STA 18+43.47 SD LINE 'A' = STA 0+00.00 SD LAT 'A-2' INSTALL 21" X 18" 60° WYE
- 2 STA 0+09.15 SD LAT 'A-2' = STA 18+52.06 SD LINE 'A', 8.15' LT INSTALL 10' STD CURB INLET 'A-2' TC = 598.40 ± FL 18" = 593.40
- 3 STA 19+54.05 SD LINE 'A', 3.50' LT INSTALL 10' STD CURB INLET 'A-1' TC = 605.00 ± FL 21" = 600.00

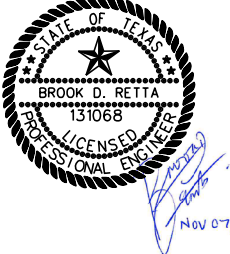
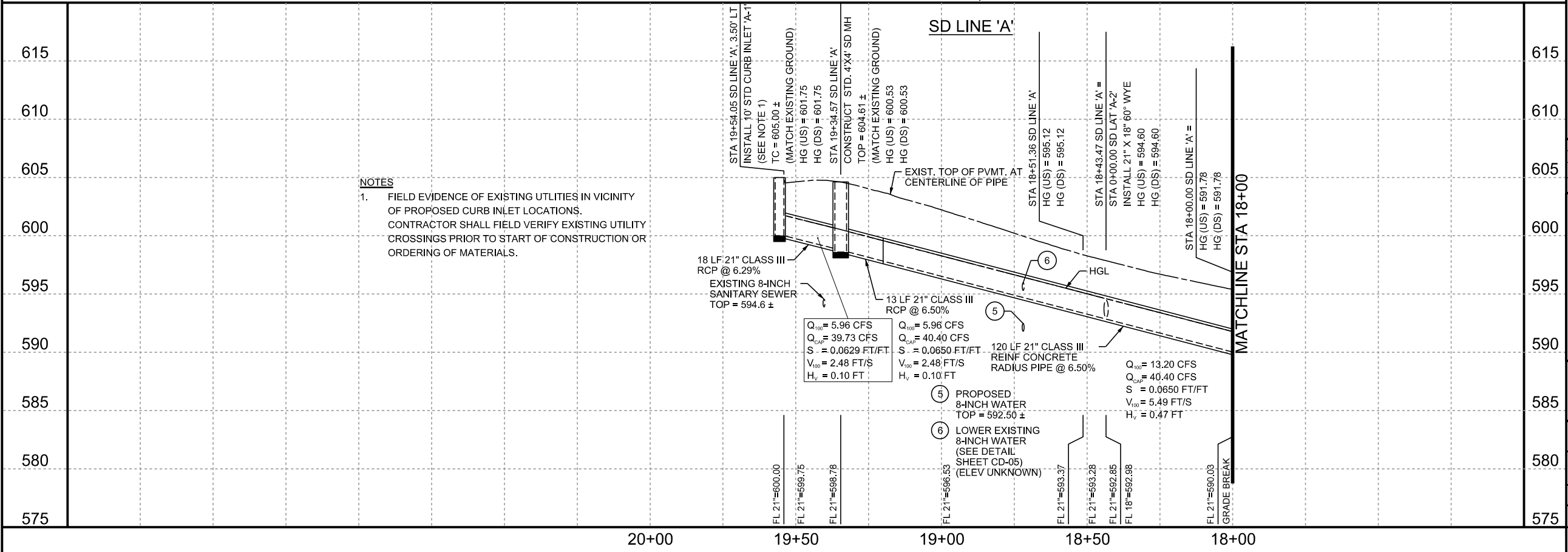
BENCHMARKS & CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"

OAKS NORTH DRIVE PROPOSED STORM - CURVE DATA									
CURVE	PI STATION	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	PC STATION	PT STATION	
PROPOSED STORM CURVE-2	18+70.14	90° 00' 00.00" (LT)	65° 28' 51.21"	87.50'	137.44'	87.50'	17+82.64	19+20.08	



- NOTES:
1. UNLESS NOTED, UTILITY CROSSING LOCATIONS BASED ON ASSUMED DEPTHS AND SHALL BE UNCOVERED AND VERIFIED BY CONTRACTOR PRIOR TO START OF CONSTRUCTION.
 2. SLOPES SHOWN BASED ON HYDRAULIC LENGTH OF PIPE SEGMENT (CENTER OF NODE TO CENTER OF NODE) LENGTHS SHOWN ARE ACTUAL LENGTH OF PIPE.
 3. INLET CONTROL POINT STA/OFF SHOWN AT CENTER LINE OF INLET BOX AT BACK OF CURB.
 4. POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES.
 5. PROPOSED INLETS TOPS AND SURFACE OF PROPOSED SIDEWALK SHALL BE EXPOSED AGGREGATE (MATCH EXISTING SURFACE).
 6. STARTING HYDRAULIC GRADE LINE ELEVATION IS BASED ON THE STORMWATER SYSTEM ASSESSMENT AND STUDY PERFORMED BY HALFF ASSOCIATES ON AUGUST, 2017.
 7. TOWN INSPECTOR WILL DETERMINE FINAL PAVEMENT REMOVAL LIMITS. ACTUAL LIMITS OF REMOVAL MAY VARY BASED ON SITE CONDITIONS.
 8. SANITARY SEWER SERVICES ARE TO BE CONSTRUCTED TO CLEAR EXISTING AND PROPOSED FACILITIES. THE SANITARY SEWER LATERAL SHALL HAVE A MIN. COVER OF 4' BELOW THE CURB GRADE AT THE PROPERTY LINE, OR AS REQUIRED TO MAINTAIN A MINIMUM OF 1.00% GRADE, OR AS DIRECTED BY THE OWNER.
 9. NO SEPARATE PAY ITEM FOR PAVEMENT REPAIR HEADER. THIS ITEM SHALL BE SUBSIDIARY TO REINFORCED CONCRETE PAVEMENT ITEM.
 10. TEMPORARY PAVEMENT FOR TRENCH REPAIRS SHALL BE SUBSIDIARY TO THE FURNISHING AND INSTALLATION OF REINFORCED CONCRETE PIPE. TEMPORARY MAINTENANCE MATERIAL FOR TRENCH REPAIRS ASSOCIATED WITH PIPE INSTALLATION SHOULD INCLUDE 2" TYPE C HMA OVER 6" OF FLEXIBLE BASE.

- NOTES
1. FIELD EVIDENCE OF EXISTING UTILITIES IN VICINITY OF PROPOSED CURB INLET LOCATIONS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY CROSSINGS PRIOR TO START OF CONSTRUCTION OR ORDERING OF MATERIALS.



REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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2			



CRIADO
4100 SPRING VALLEY ROAD, SUITE 1001
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FIRM NO. F-4373

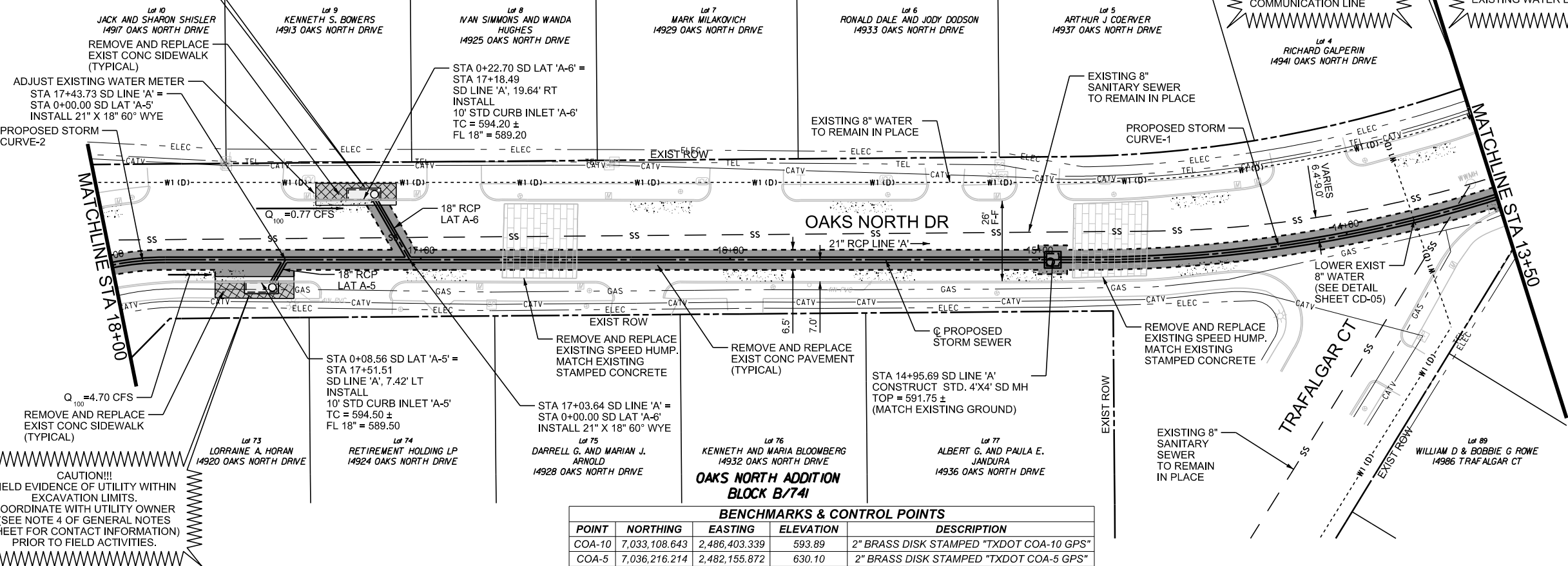
**DRAINAGE PLAN & PROFILE
STA. 18+00 TO END
OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DRN-01	12

DATE: 11/17/2019 TIME: 1:15:06 PM FILE NAME: N:\PROJECTS\R14285.00_Addison_2017\Various Projects\R14285.01_White Rock Drainage\07_DON0706_Sheets\1428501_DRN_01.dgn

OAKS NORTH DRIVE PROPOSED STORM - CURVE DATA								
CURVE	PI STATION	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	PC STATION	PT STATION
PROPOSED STORM CURVE-1	12+92.15	54° 37' 31.43" (RT)	13° 01' 18.37"	227.22'	419.49'	440.00'	10+64.92	14+84.42
PROPOSED STORM CURVE-2	18+70.14	90° 00' 00.00" (LT)	65° 28' 51.21"	87.50'	137.44'	87.50'	17+82.64	19+20.08

CAUTION!!!
FIELD EVIDENCE OF UTILITY WITHIN EXCAVATION LIMITS. COORDINATE WITH UTILITY OWNER (SEE NOTE 4 OF GENERAL NOTES SHEET FOR CONTACT INFORMATION) PRIOR TO FIELD ACTIVITIES.



BENCHMARKS & CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"

0 10 20 30 40
HORIZONTAL SCALE IN FEET

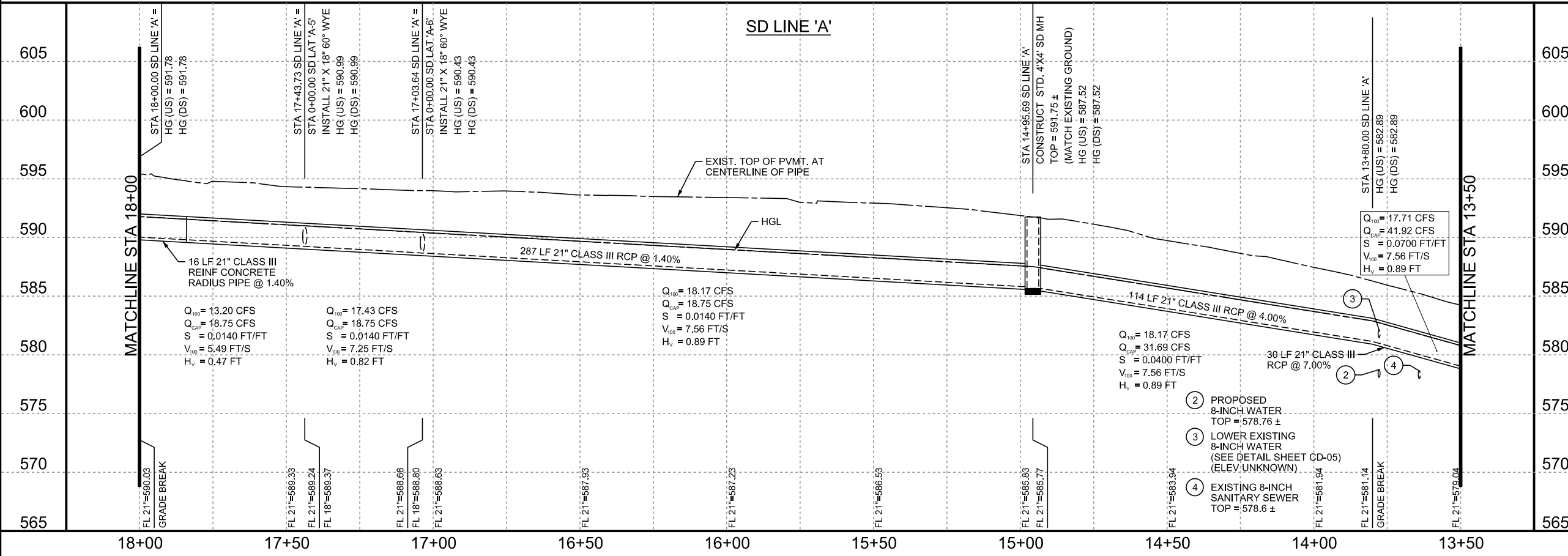
0 5 10
VERTICAL SCALE IN FEET

LEGEND

- REMOVE AND REPLACE REINFORCED CONCRETE PAVEMENT (HIGH EARLY STRENGTH)
- REMOVE AND REPLACE REINFORCED CONCRETE SIDEWALK (EXPOSED AGGREGATE)
- SAWCUT LINE (NO SEPARATE PAY ITEM)
- PROPOSED STORM SEWER
- DESIGN POINT

NOTES:

- UNLESS NOTED, UTILITY CROSSING LOCATIONS BASED ON ASSUMED DEPTHS AND SHALL BE UNCOVERED AND VERIFIED BY CONTRACTOR PRIOR TO START OF CONSTRUCTION.
- SLOPES SHOWN BASED ON HYDRAULIC LENGTH OF PIPE SEGMENT (CENTER OF NODE TO CENTER OF NODE) LENGTHS SHOWN ARE ACTUAL LENGTH OF PIPE.
- INLET CONTROL POINT STA/OFF SHOWN AT CENTER LINE OF INLET BOX AT BACK OF CURB.
- POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES.
- PROPOSED INLETS TOPS AND SURFACE OF PROPOSED SIDEWALK SHALL BE EXPOSED AGGREGATE (MATCH EXISTING SURFACE).
- STARTING HYDRAULIC GRADE LINE ELEVATION IS BASED ON THE STORMWATER SYSTEM ASSESSMENT AND STUDY PERFORMED BY HALFF ASSOCIATES ON AUGUST, 2017.
- TOWN INSPECTOR WILL DETERMINE FINAL PAVEMENT REMOVAL LIMITS. ACTUAL LIMITS OF REMOVAL MAY VARY BASED ON SITE CONDITIONS.
- SANITARY SEWER SERVICES ARE TO BE CONSTRUCTED TO CLEAR EXISTING AND PROPOSED FACILITIES. THE SANITARY SEWER LATERAL SHALL HAVE A MIN. COVER OF 4' BELOW THE CURB GRADE AT THE PROPERTY LINE, OR AS REQUIRED TO MAINTAIN A MINIMUM OF 1.00% GRADE, OR AS DIRECTED BY THE OWNER.
- NO SEPARATE PAY ITEM FOR PAVEMENT REPAIR HEADER. THIS ITEM SHALL BE SUBSIDIARY TO REINFORCED CONCRETE PAVEMENT ITEM.
- TEMPORARY PAVEMENT FOR TRENCH REPAIRS SHALL BE SUBSIDIARY TO THE FURNISHING AND INSTALLATION OF REINFORCED CONCRETE PIPE. TEMPORARY MAINTENANCE MATERIAL FOR TRENCH REPAIRS ASSOCIATED WITH PIPE INSTALLATION SHOULD INCLUDE 2" TYPE C HMA OVER 6" OF FLEXIBLE BASE.



NOV 07, 2019

REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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CRIADO

4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

DRAINAGE PLAN & PROFILE
STA. 13+50 TO STA. 18+00

OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DRN-02	13

DATE: 11/7/2019
 TIME: 1:15:09 PM
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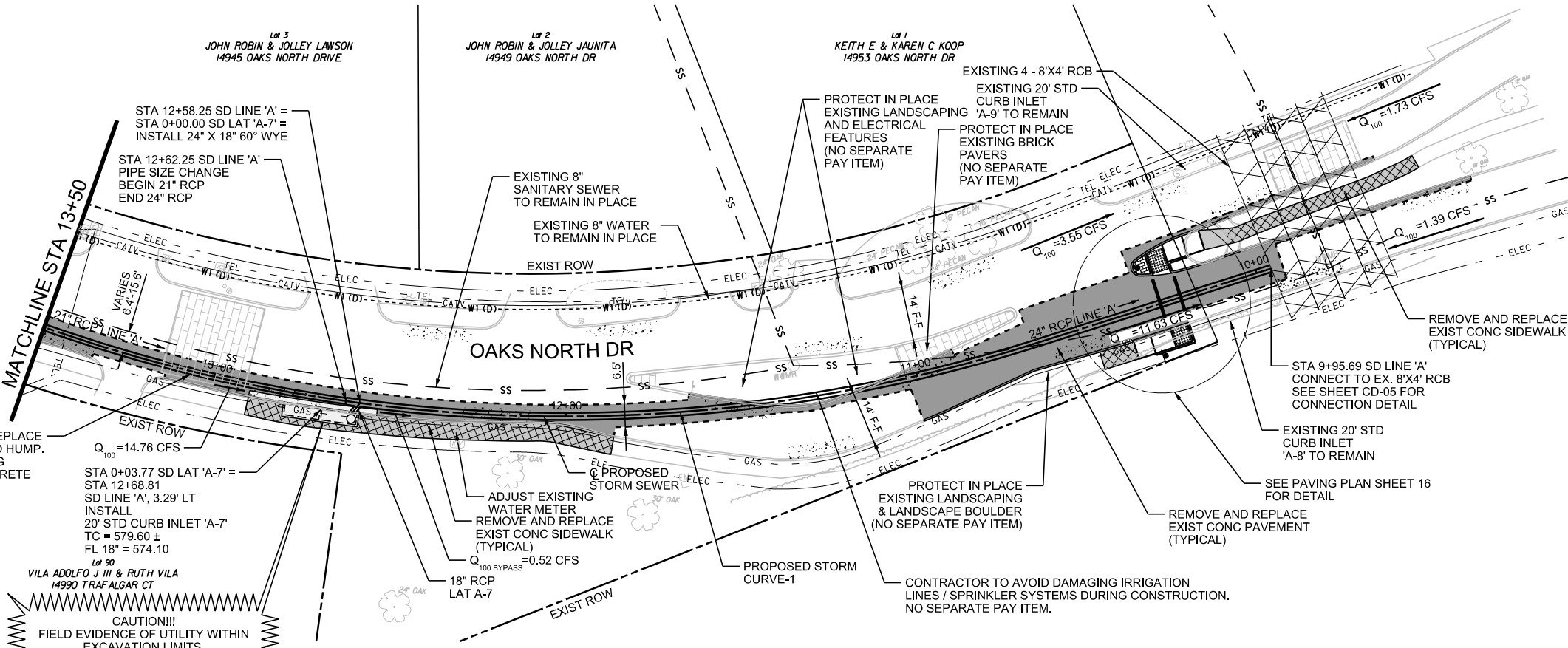
- CAUTION!!!
EXISTING UNDERGROUND
NATURAL GAS LINE
- CAUTION!!!
EXISTING WATER LINE
- CAUTION!!!
EXISTING SANITARY SEWER
LINE
- CAUTION!!!
EXISTING UNDERGROUND
COMMUNICATION LINE
- CAUTION!!!
EXISTING UNDERGROUND
ELECTRIC LINE

BENCHMARKS & CONTROL POINTS					
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"	
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"	

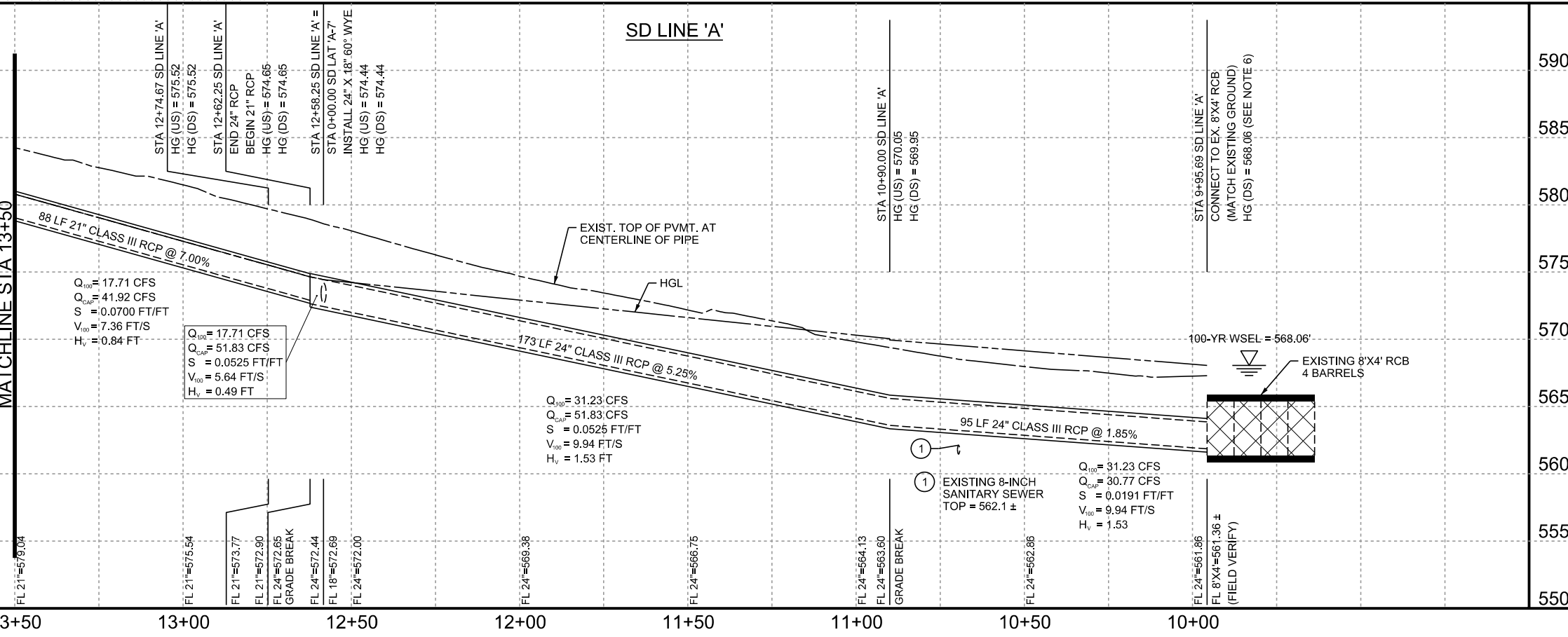


- LEGEND**
- REMOVE AND REPLACE REINFORCED CONCRETE PAVEMENT (HIGH EARLY STRENGTH)
 - REMOVE AND REPLACE REINFORCED CONCRETE SIDEWALK (EXPOSED AGGREGATE)
 - SAWCUT LINE (NO SEPARATE PAY ITEM)
 - PROPOSED STORM SEWER
 - DESIGN POINT

- NOTES:**
- UNLESS NOTED, UTILITY CROSSING LOCATIONS BASED ON ASSUMED DEPTHS AND SHALL BE UNCOVERED AND VERIFIED BY CONTRACTOR PRIOR TO START OF CONSTRUCTION.
 - SLOPES SHOWN BASED ON HYDRAULIC LENGTH OF PIPE SEGMENT (CENTER OF NODE TO CENTER OF NODE) LENGTHS SHOWN ARE ACTUAL LENGTH OF PIPE.
 - INLET CONTROL POINT STA/OFF SHOWN AT CENTER LINE OF INLET BOX AT BACK OF CURB.
 - POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES.
 - PROPOSED INLETS TOPS AND SURFACE OF PROPOSED SIDEWALK SHALL BE EXPOSED AGGREGATE (MATCH EXISTING SURFACE).
 - STARTING HYDRAULIC GRADE LINE ELEVATION IS BASED ON THE STORMWATER SYSTEM ASSESSMENT AND STUDY PERFORMED BY HALFF ASSOCIATES ON AUGUST, 2017.
 - TOWN INSPECTOR WILL DETERMINE FINAL PAVEMENT REMOVAL LIMITS. ACTUAL LIMITS OF REMOVAL MAY VARY BASED ON SITE CONDITIONS.
 - SANITARY SEWER SERVICES ARE TO BE CONSTRUCTED TO CLEAR EXISTING AND PROPOSED FACILITIES. THE SANITARY SEWER LATERAL SHALL HAVE A MIN. COVER OF 4' BELOW THE CURB GRADE AT THE PROPERTY LINE, OR AS REQUIRED TO MAINTAIN A MINIMUM OF 1.00% GRADE, OR AS DIRECTED BY THE OWNER.
 - NO SEPARATE PAY ITEM FOR PAVEMENT REPAIR HEADER. THIS ITEM SHALL BE SUBSIDIARY TO REINFORCED CONCRETE PAVEMENT ITEM.
 - TEMPORARY PAVEMENT FOR TRENCH REPAIRS SHALL BE SUBSIDIARY TO THE FURNISHING AND INSTALLATION OF REINFORCED CONCRETE PIPE. TEMPORARY MAINTENANCE MATERIAL FOR TRENCH REPAIRS ASSOCIATED WITH PIPE INSTALLATION SHOULD INCLUDE 2" TYPE C HMA OVER 6" OF FLEXIBLE BASE.



OAKS NORTH DRIVE PROPOSED STORM - CURVE DATA									
CURVE	PI STATION	DELTA	DEGREE	TANGENT	LENGTH	RADIUS	PC STATION	PT STATION	
PROPOSED STORM CURVE-1	12+92.15	54° 37' 31.43" (RT)	13° 01' 18.37"	227.22'	419.49'	440.00'	10+64.92	14+84.42	



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REV NO.	DATE	DESCRIPTION	BY
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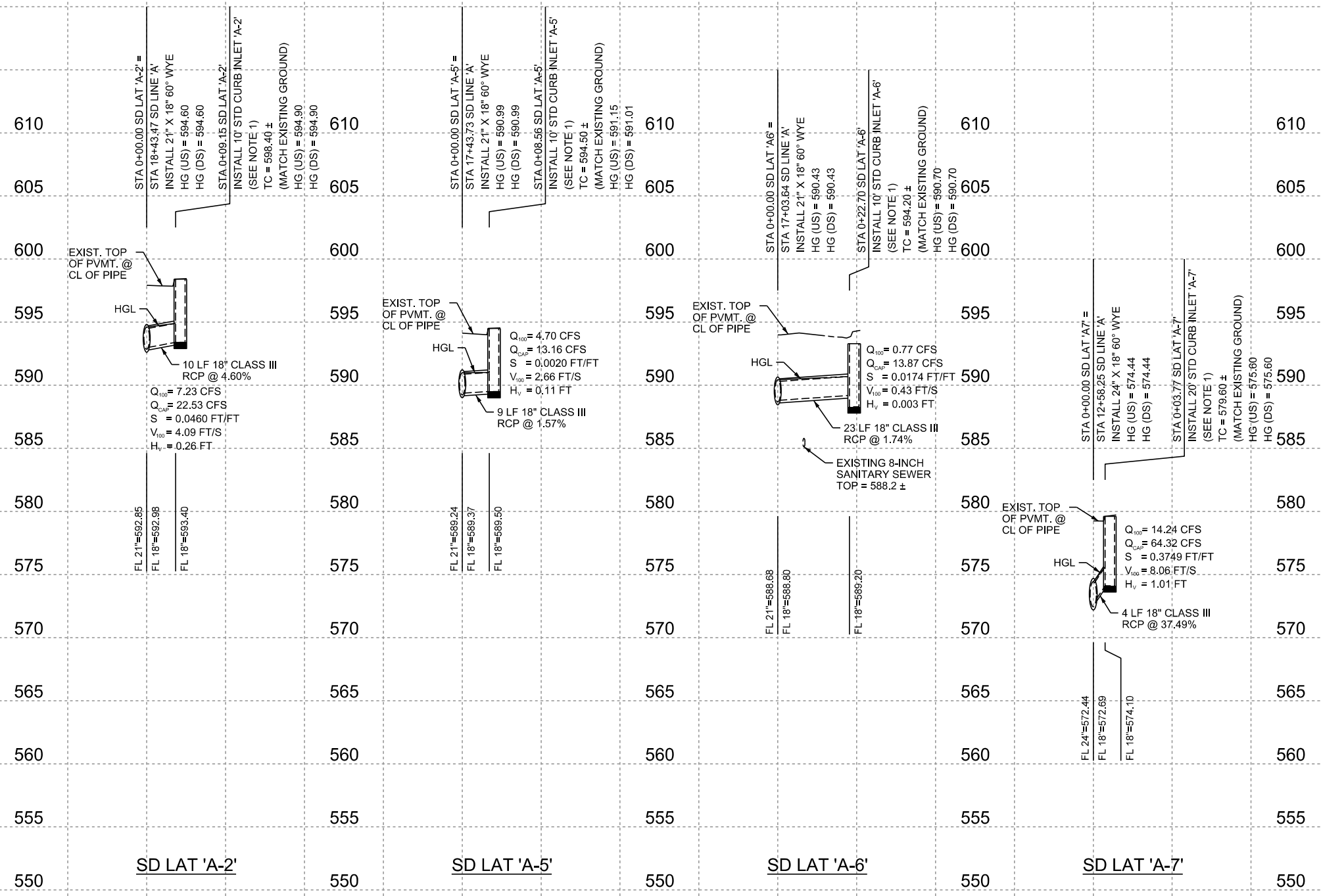
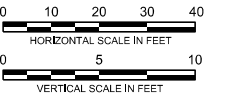


CRIADO
4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

**DRAINAGE PLAN & PROFILE
BEGIN TO STA. 13+50
OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DRN-03	14

DATE: 11/7/2019 TIME: 1:31:13 PM FILE NAME: N:\PROJECTS\R14285.00_Addison_2017\Various Projects\R14285.01_White Rock Drainage\07_DGN\076_Sheet\1428501_DRN_03.dgn



- NOTES**
- FIELD EVIDENCE OF EXISTING UTILITIES IN VICINITY OF PROPOSED CURB INLET LOCATIONS. CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY CROSSINGS PRIOR TO START OF CONSTRUCTION OR ORDERING OF MATERIALS.



Nov 07, 2019

REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
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 FIRM NO. F-4373

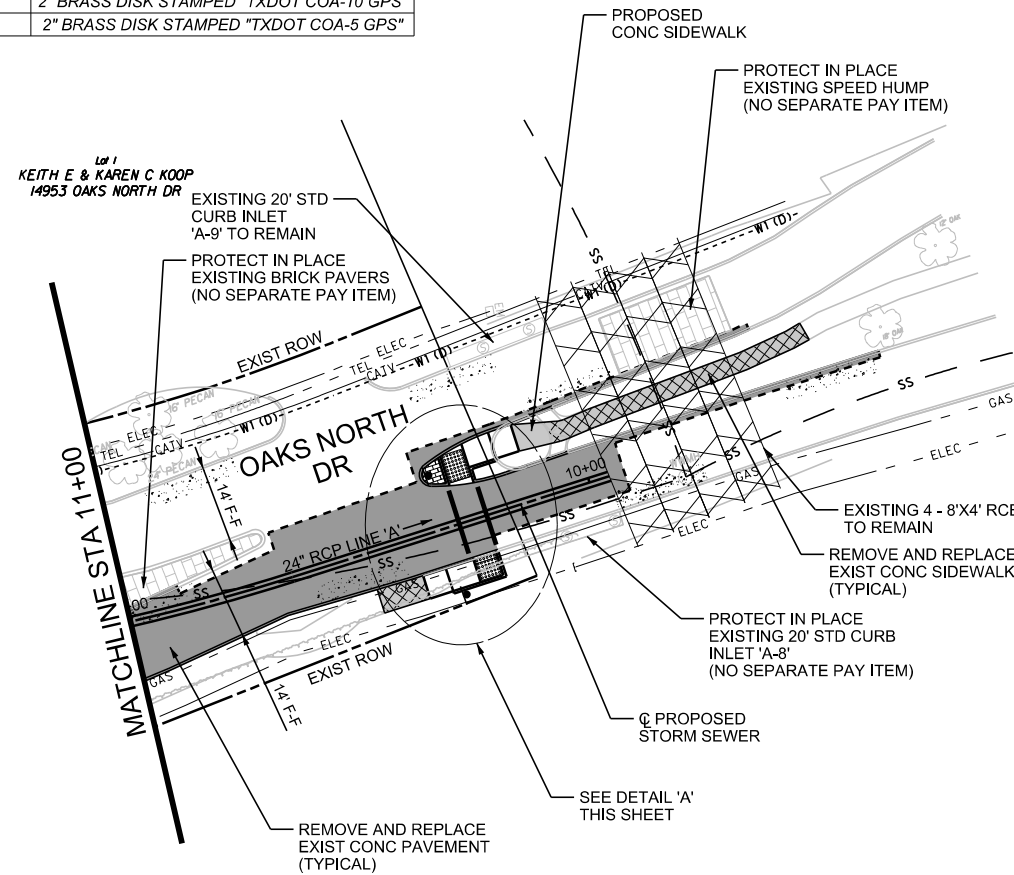
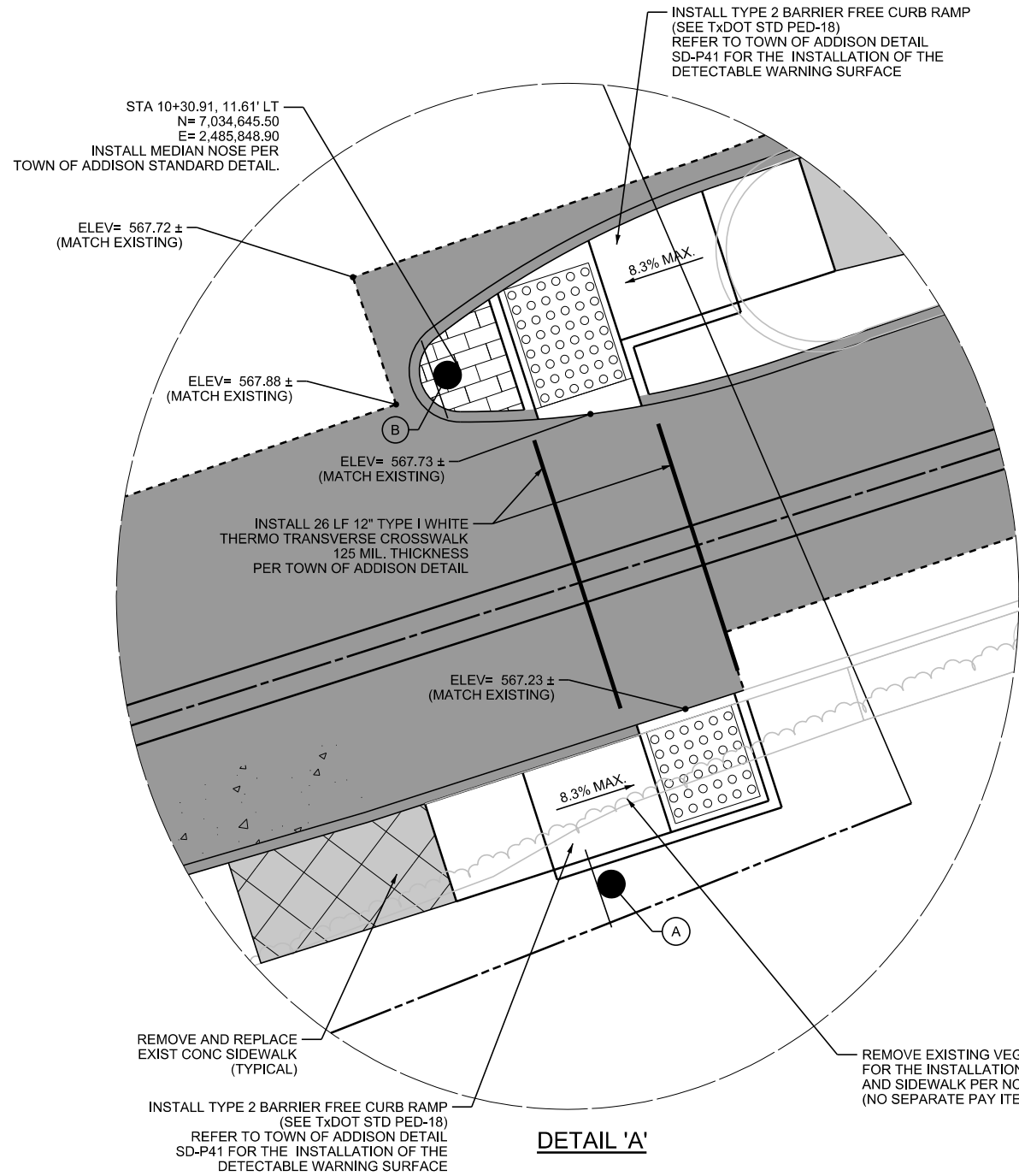
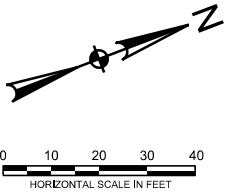
DRAINAGE LATERAL PROFILES

**OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS
 TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DRN-04	15

DATE: 11/7/2019
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 FILE NAME: N:\PROJECTS\R14285.00_A Addison_2017 Various Projects\R14285.01_White Rock Drainage\07_DGN\076_Sheets\1428501_DRN_04.dgn

BENCHMARKS & CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"



- LEGEND**
- REMOVE AND REPLACE REINFORCED CONCRETE PAVEMENT (HIGH EARLY STRENGTH)
 - REMOVE AND REPLACE REINFORCED CONCRETE SIDEWALK (EXPOSED AGGREGATE)
 - SAWCUT LINE (NO SEPARATE PAY ITEM)
 - PROPOSED SIGN

- NOTES:**
- ALL DIMENSIONS AND STATION/OFFSETS ARE BASED ON THE CENTERLINE FOR THE PROPOSED STORM DRAIN TRUNK LINE.
 - UNLESS NOTED, UTILITY CROSSING LOCATIONS BASED ON ASSUMED DEPTHS AND SHALL BE UNCOVERED AND VERIFIED BY CONTRACTOR PRIOR TO START OF CONSTRUCTION.
 - POSITIVE DRAINAGE MUST BE MAINTAINED AT ALL TIMES.
 - SURFACE OF PROPOSED SIDEWALK SHALL BE EXPOSED AGGREGATE (MATCH EXISTING SURFACE).
 - TOWN INSPECTOR WILL DETERMINE FINAL PAVEMENT REMOVAL LIMITS. ACTUAL LIMITS OF REMOVAL MAY VARY BASED ON SITE CONDITIONS.
 - NO SEPARATE PAY ITEM FOR PAVEMENT REPAIR HEADER. THIS ITEM SHALL BE SUBSIDIARY TO REINFORCED CONCRETE PAVEMENT ITEM.



REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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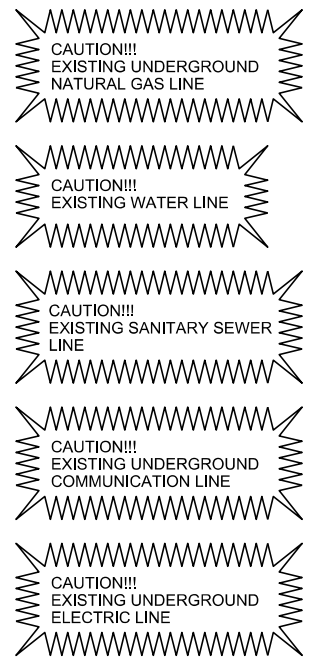
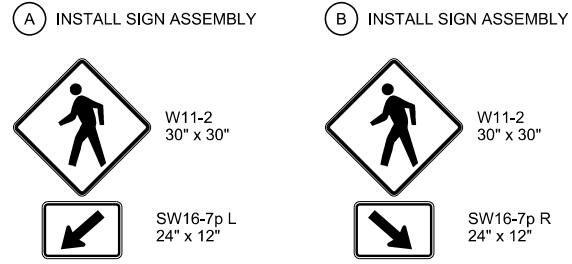


CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

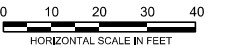
PAVING PLAN

**OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	PAVE-01	16



DATE: 11/17/2019 TIME: 1:16:18 PM FILE NAME: N:\PROJECTS\14285.00_Addison_2017\Various Projects\14285.01_White Rock Drainage\07_DCN1076_Sheet\1428501_PAVE_01.dgn



LEGEND:

- CIP
- PROPOSED SOD
- SURFACE FLOW DIRECTION
- EXISTING CONTOURS

NOTES:

1. SEE SW3P SHEET FOR MORE INFORMATION AND NOTES.
2. COORDINATE SW3P BMP INSTALLATION SEQUENCE WITH OVERALL PHASING PLAN; SEE OVERALL PHASING PLAN SHEET FOR ADDITIONAL INFORMATION.
3. CONTRACTOR SHALL ADJUST LOCATION OF CONSTRUCTION ENTRANCES DEPENDING ON CONSTRUCTION SEQUENCE PHASING TO PROVIDE EXIT FROM ANY ACTIVE DISTURBED AREA.



Nov 07, 2019

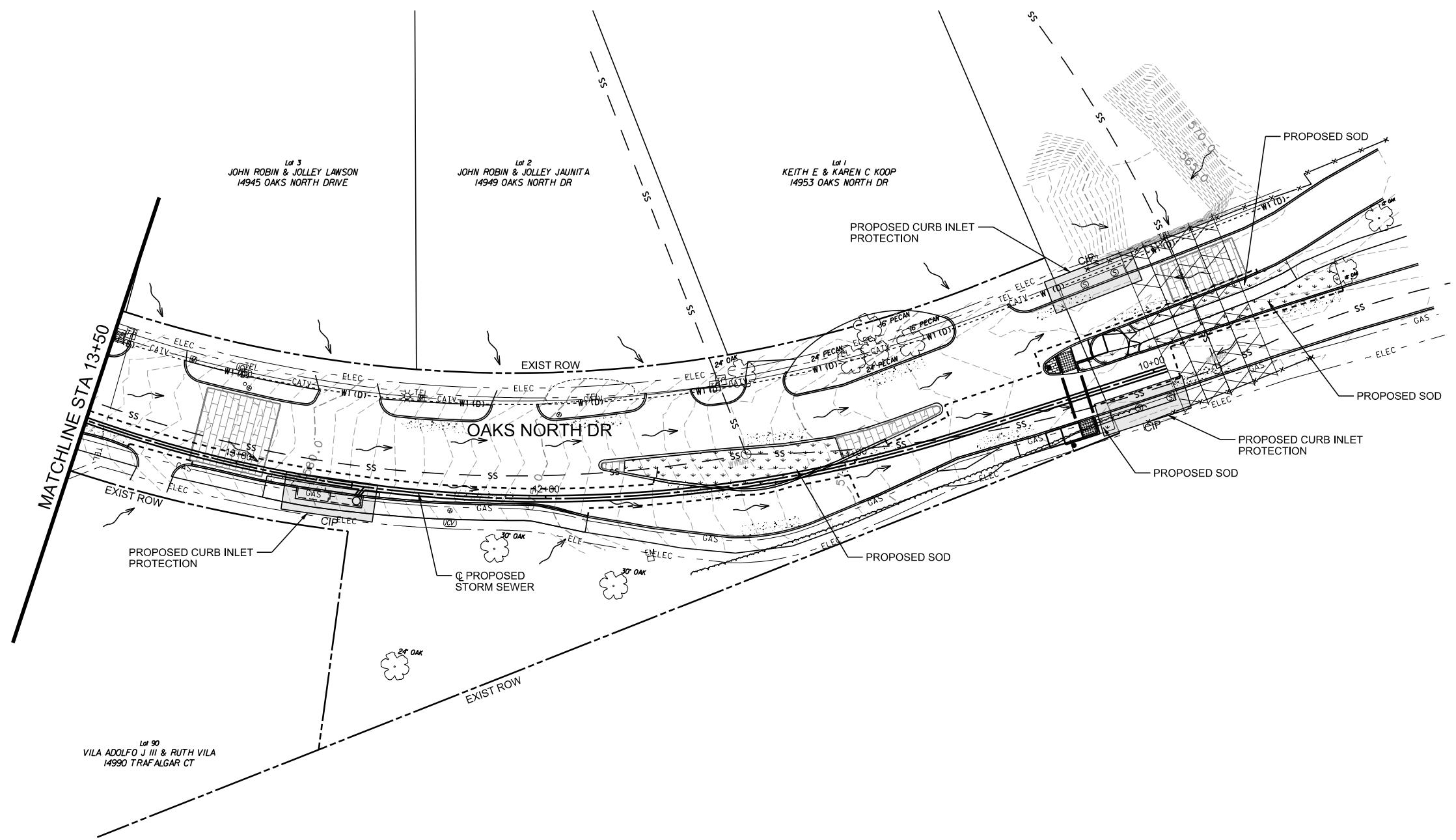
REVISIONS			
REV NO.	DATE	DESCRIPTION	BY
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CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

**EROSION CONTROL PLAN
BEGIN TO STA. 13+50
OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	EC-01	17



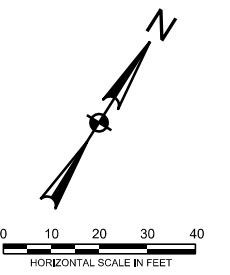
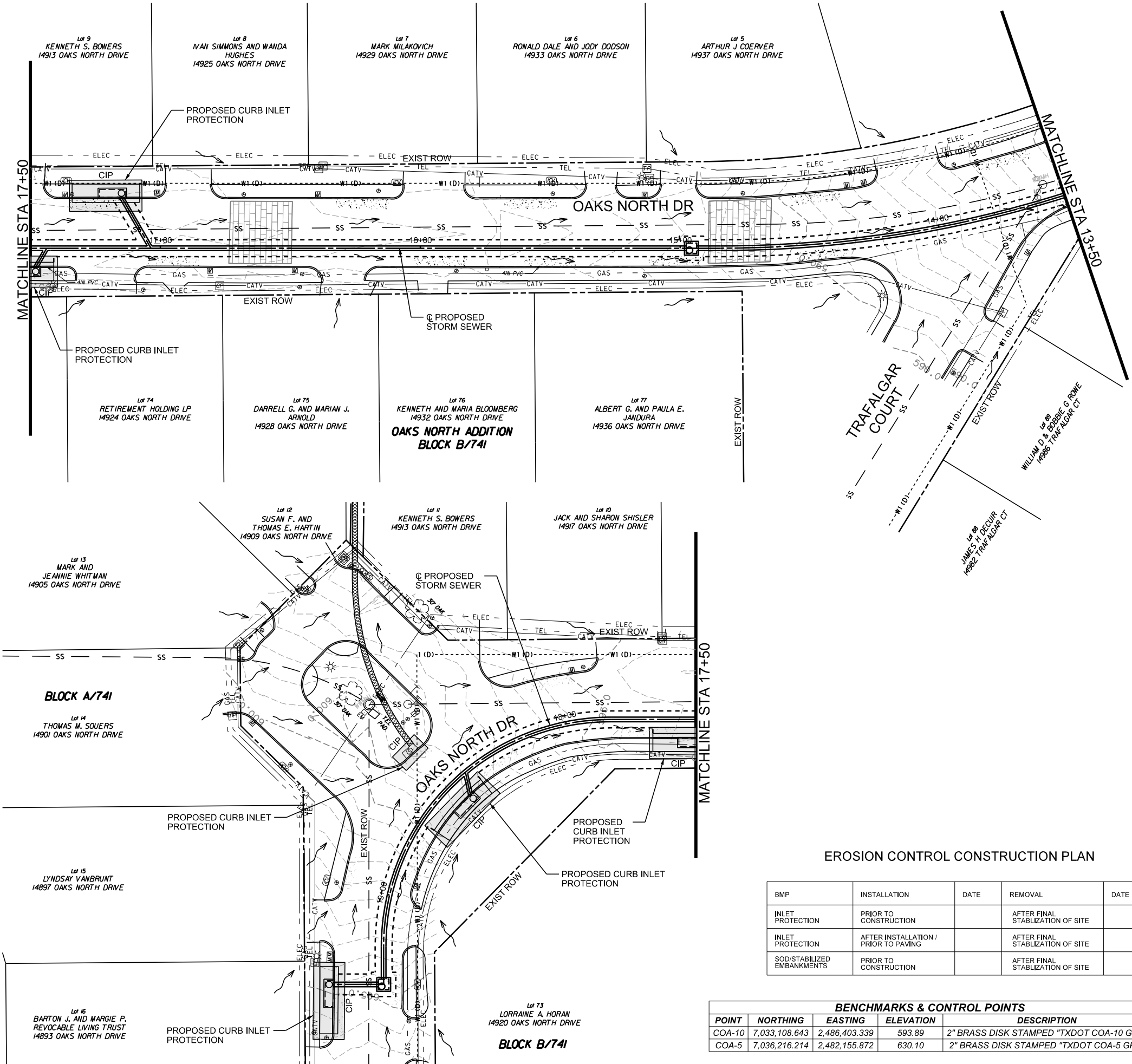
BENCHMARKS & CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"





BMP	INSTALLATION	DATE	REMOVAL	DATE
INLET PROTECTION	PRIOR TO CONSTRUCTION		AFTER FINAL STABILIZATION OF SITE	
INLET PROTECTION	AFTER INSTALLATION / PRIOR TO PAVING		AFTER FINAL STABILIZATION OF SITE	
SOD/STABILIZED EMBANKMENTS	PRIOR TO CONSTRUCTION		AFTER FINAL STABILIZATION OF SITE	

EROSION CONTROL CONSTRUCTION PLAN

DATE: 11/7/2019 TIME: 10:56 PM FILE NAME: N:\PROJECTS\R14285.00_Addison_2017\Various Projects\R14285.01_White Rock Drainage\07_DGN\076_Sheet\1428501_EC_01.dgn

DATE: 11/17/2019
 TIME: 10:11:12 PM
 FILE NAME: N:\PROJECTS\14285.00_A Addison_2017\Various Projects\14285.01_White Rock Drainage\07_DGN\076_Sheets\1428501_EC_02.dgn



- LEGEND:**
-  CIP
 -  PROPOSED SOD
 -  SURFACE FLOW DIRECTION
 -  EXISTING CONTOURS

- NOTES:**
- SEE SW3P SHEET FOR MORE INFORMATION AND NOTES.
 - COORDINATE SW3P BMP INSTALLATION SEQUENCE WITH OVERALL PHASING PLAN; SEE OVERALL PHASING PLAN SHEET FOR ADDITIONAL INFORMATION.
 - CONTRACTOR SHALL ADJUST LOCATION OF CONSTRUCTION ENTRANCES DEPENDING ON CONSTRUCTION SEQUENCE PHASING TO PROVIDE EXIT FROM ANY ACTIVE DISTURBED AREA.



Nov 07, 2019

REVISIONS			
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CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
 FIRM NO. F-4373

**EROSION CONTROL PLAN
 STA. 13+50 TO END
 OAKS NORTH DRIVE
 DRAINAGE IMPROVEMENTS
 TOWN OF ADDISON, TEXAS**

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	EC-02	18

EROSION CONTROL CONSTRUCTION PLAN

BMP	INSTALLATION	DATE	REMOVAL	DATE
INLET PROTECTION	PRIOR TO CONSTRUCTION		AFTER FINAL STABILIZATION OF SITE	
INLET PROTECTION	AFTER INSTALLATION / PRIOR TO PAVING		AFTER FINAL STABILIZATION OF SITE	
SOD/STABILIZED EMBANKMENTS	PRIOR TO CONSTRUCTION		AFTER FINAL STABILIZATION OF SITE	

BENCHMARKS & CONTROL POINTS					
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	
COA-10	7,033,108.643	2,486,403.339	593.89	2" BRASS DISK STAMPED "TXDOT COA-10 GPS"	
COA-5	7,036,216.214	2,482,155.872	630.10	2" BRASS DISK STAMPED "TXDOT COA-5 GPS"	

A. GENERAL SITE DATA

1. PROJECT LIMITS:

Begin Project Coordinates : Latitude (N) : 32.95°N Longitude (W) : - 96.81°W

2. PROJECT SITE MAPS:

- * Project Location Map: The Title Sheet
- * Drainage Patterns: Drainage Area Map (Sheet 9)
- * Slopes Anticipated After Major Gradings or Areas of Soil Disturbance: Typical Section (N/A)
- * Location of Erosion and Sediment Controls: SW3P Site Maps (Sheets 17-18)
- * Surface Waters and Discharge Locations: Drainage (Sheets 12-14)
- * Project Specific Location(s) (PSL): To be determined by the project Construction Personnel. Location(s) shown on SW3P Site Map (If PSL location(s) is within one mile of project) and information located in project SW3P Binder (Reference Item *10 below).

3. PROJECT DESCRIPTION:

Construction of proposed storm drain system along Oaks North Drive.

4. MAJOR SOIL DISTURBING ACTIVITIES:

Demo of Existing Pavement.
Site Preparation.
Utility Construction.
Trench Repair.

5. EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:

Existing soil is clay loam, very gravelly clay loam and bedrock.

6. TOTAL PROJECT AREA: 11 Acres

7. TOTAL AREA TO BE DISTURBED: 0.2 Acres (18 %)

8. WEIGHTED RUNOFF COEFFICIENT

BEFORE CONSTRUCTION: 0.60
AFTER CONSTRUCTION: 0.60

9. NAME OF RECEIVING WATERS:

White Rock Creek Tributary I

10. PROJECT SW3P Binder:

- A. For projects disturbing one to five acres, Contractor will maintain a SW3P Binder at the project site which contains the following: Index Sheet, TCEQ Signature Authority, TCEQ Small Construction, Site Notice, Contractor Certification of Compliance, SW3P Inspector Qualification Statements, Inspection and Maintenance Reports (Form 2118), EPIC Sheet, SW3P Sheet, Site Location Maps, Stored Material Lists specifying associated control measures and the Appendix which contains the TPDES Construction General Permit, MS4 Operator Notification(s) and the Construction PSL Permits per all applicable requirements.
- B. For projects disturbing 5 acres or more, TxDOT will follow the actions listed in (10.A) above with the addition of the following: Notice Of Intent (NOI) and Fee Payment Form, TCEQ Large Construction Site Notice (to be used instead of Small Site Notice), and TPDES Permit Coverage Notice.
- C. For projects disturbing less than one acre, actions described in (10.A) and (10.B) above are not required. Acreage is calculated by adding Total Area To Be Disturbed Acres on project (See *7 above) and the PSL(s) acreage located within one mile of project.

B. EROSION AND SEDIMENT CONTROLS

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

- ___ TEMPORARY SEEDING
- ___ MULCHING (Hay or Straw)
- ___ BUFFER ZONES
- ___ PLANTING
- ___ SEEDING
- P SODDING
- ___ PRESERVATION OF NATURAL RESOURCES
- ___ FLEXIBLE CHANNEL LINER
- ___ RIGID CHANNEL LINER
- ___ SOIL RETENTION BLANKET
- ___ COMPOST MANUFACTURED TOPSOIL
- ___ VERTICAL TRACKING
- ___ OTHER:

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

- ___ SILT FENCES
- T EROSION CONTROL LOGS
- ___ EROSION CONTROL COMPOST BERMS (Low Velocity)
- ___ ROCK FILTER DAMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- T ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- ___ CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ___ SEDIMENT BASINS
- T STORM INLET SEDIMENT TRAP
- ___ STONE OUTLET STRUCTURES
- P CURBS AND GUTTERS
- P STORM SEWERS
- ___ VELOCITY CONTROL DEVICES
- ___ OTHER:

NOTE: TOP OF BMP'S SHOULD NOT BE HIGHER THAN ROADWAY ELEVATION AS NOT TO FLOOD ROADWAY UNLESS PRIOR APPROVAL FROM ENGINEER IS OBTAINED.

3. STORM WATER MANAGEMENT:

- A. Storm water drainage will be provided by, inlets, and storm water systems which carry drainage within the R.O.W. to the lows within the roadway and project site which drains to natural facilities.

4. STORM WATER MANAGEMENT ACTIVITIES: (Sequence of Construction)

Phase I Construction:
Install temporary erosion control logs on existing curb inlets and along ROW downstream of project site. Following demolition of Inlet tops install TECL around inlet bottoms.

Phase II Construction:
Install TECL around constructed Inlet bottoms.

Phase III Construction:
Install block sod/seedling over disturbed non-pavement surfaces. Upon establishment of ground cover vegetation, remove TECLs from inlets and ROW.

5. NON-STORM WATER DISCHARGES:

Filter non-storm water discharges, or hold in retention basins, before being allowed to mix with storm water. These discharges consist of, but not limited to, non-polluted ground water, spring water, foundation or footing drain water, water used for dust control or pavement washing and vehicle washwater containing no detergents.

C. OTHER REQUIREMENTS & PRACTICES

1. MAINTENANCE:

Maintain all erosion and sediment controls in good working order. Perform any necessary cleaning/repairs/replacements at the earliest possible date prior to next rain event, but no later than 7 calendar days. Ensure the surrounding ground has dried sufficiently to prevent damage from equipment. "Too Wet" is the only reason for not adhering to timeframes described. When construction activities permanently or temporarily cease and are not expected to resume for 14 or more days on a disturbed portion of the site, stabilization measures must be initiated immediately.

2. INSPECTION:

A Town of Flower Mound (TOFM) Inspector will perform a regularly scheduled SW3P inspection every 7 calendar days. An Inspection and Maintenance Report, signed by the TOFM Inspector and the Contractor, will be filed for each inspection. Revise/clean/repair/replace each BMP control device in accordance with the current TxDOT Standard Field Inspection and Maintenance Report (Form 2118) and Item I (Maintenance) above.

3. WASTE MATERIALS:

On a daily basis, or as may be directed, collect all waste materials, trash and debris from the construction site and deposit into a metal dumpster having a secure cover and which meets all state and local city solid waste management requirements. Empty the dumpster as required by regulation, or as may be directed, at a local approved landfill site. Do not bury construction waste on the construction project site.

4. HAZARDOUS WASTE & SPILL REPORTING:

As a minimum, any products in the following categories are considered to be hazardous: Paints, Acids, Solvents, Fuels, Asphalt Products, Chemical Additives for Soil Stabilization, and Concrete Curing Compounds or Additives. When storing hazardous material on the project site, or at a Project Specific Location, take all practicable precaution to prevent and/or contain any spillage of these materials. In the event of a spill, contact the spill coordinator immediately.

5. SANITARY WASTE:

Use a licensed sanitary waste management contractor to collect all sanitary waste from portable units as may be required by local regulation, or as directed.

6. CONSTRUCTION VEHICLE TRACKING:

On a regular basis, or as may be directed, dampen the work site for dust control and stabilize construction entrances/exits. Provide for a motorized broom or vacuum type sweeper to be available on a daily basis, or as may be directed, to remove sediment from paved roadways abutting or traversing the project site.

7. MANAGEMENT PRACTICES:

- A. Construct disposal areas, stockpiles, haul roads and PSL's in a manner that will minimize and control the amount of sediment that may enter receiving waters. Do not locate disposal areas in any wetland, waterbody or streambed.
- B. Locate construction staging areas, vehicle maintenance and PSL's areas in a manner to minimize the runoff of pollutants.
- C. When working in or near a wetland, install and maintain operating soil erosion and sediment controls at all times during construction and isolate the work from the wetland.
- D. Clear all waterways as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are not a part of the finished work.
- E. Procedures and/or practices should be taken to control dust.
- F. Sediment to be removed from roadways daily or when work begins after weather events if construction activities have ceased due to weather event.

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CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

STORMWATER POLLUTION PREVENTION PLAN
OAKS NORTH DRIVE DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

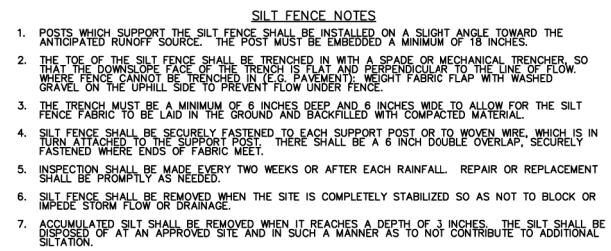
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	SW3P	19



Nov 07, 2019

- EROSION CONTROL PLAN NOTES**
- ALL OPERATORS AND/OR CONTRACTORS SHALL CONFORM TO THE TERMS AND CONDITIONS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), TIDES GENERAL PERMIT NO. TDR 150000 ISSUED AND DATED MARCH 5, 2003.
 - THE NOTICE OF INTENT (NOI), AS REQUIRED BY THE GENERAL PERMIT, MUST BE PROPERLY DISPLAYED ON SITE AT ALL TIMES BY EACH OPERATOR.
 - ALL RELEASES OF THE REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES SHALL BE REPORTED IMMEDIATELY TO THE FACILITY OPERATOR, EPA AND TCEQ.
 - QUALIFIED OPERATOR PERSONNEL MUST INSPECT THE SITE AT LEAST EVERY 14 DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER. AS AN ALTERNATIVE, AN INSPECTION CAN BE CONDUCTED ONCE EVERY SEVEN (7) CALENDAR DAYS ON A DEFINED DAY. A DECISION ON WHICH METHOD TO USE MUST BE DECIDED BEFORE WORK BEGINS AND MUST BE FOLLOWED THROUGHOUT THE PROJECT.
 - MODIFICATIONS TO THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE IMPLEMENTED AND BE IN-PLACE WITHIN A SEVEN CALENDAR DAY PERIOD.
 - IF ANY CONTRACTOR SEES A VIOLATION BY AN OPERATOR OR ANOTHER CONTRACTOR, THAT OPERATOR OR CONTRACTOR IN VIOLATION SHALL BE NOTIFIED AS WELL AS THE FACILITY OPERATOR.
 - EROSION CONTROL SHALL BE INSTALLED PRIOR TO GRADING.
 - ACCUMULATED SILT DEPOSITS SHALL BE REMOVED FROM SILT FENCES AND HAY BALE DIKES WHEN SILT DEPTH REACHES THREE INCHES OR 25%.
 - THE CONTRACTOR SHALL ADD OR DELETE EROSION PROTECTION AT THE REQUEST AND DIRECTION OF THE OPERATOR OR TOWN.
 - AFTER INSTALLATION OF PAVEMENT, FINAL LOT BENCHING AND GENERAL CLEANUP, THE CONTRACTOR SHALL ESTABLISH GRASS GROUND COVER IN ALL STREET PARKWAYS, LOT AND ALL OTHER DISTURBED AREAS. SOODING SHALL BE DONE AS SPECIFIED BY SECTION 202.5 AND SEEDING AS SPECIFIED BY SECTION 202.6 OF THE OCTOBER 2004 OR LATEST EDITION OF NCTCOG STANDARD SPECIFICATION.
 - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTROL AND LIMIT SILT AND SEDIMENT LEAVING THE SITE. SPECIFICALLY, THE CONTRACTOR SHALL PROTECT ALL PUBLIC STREETS, ALLEYS, STREAMS AND STORM DRAINAGE SYSTEMS FROM EROSION DEPOSITS.
 - A DRAINAGE AREA MAP WILL BE INCLUDED WITH THE EROSION CONTROL PLAN.
 - CONSTRUCTION WASTE DISPOSAL CONTAINERS SHALL BE PROVIDED ON THE SITE FOR DISPOSAL OF ALL NON-HAZARDOUS CONSTRUCTION WASTE MATERIALS. THE CONTAINERS SHALL BE HAULED TO LANDFILL BY THE CONTRACTOR.
 - ALL HAZARDOUS MATERIALS SHALL BE HANDLED AND DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

- SILT FENCE NOTES**
- POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. THE POST MUST BE EMBEDDED A MINIMUM OF 18 INCHES.
 - 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 WASHED GRAVEL ON THE UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
 - 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.
 - SILT FENCES SHALL BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WOVEN WIRE WHICH IS IN TURN ATTACHED TO THE SUPPORT POST. THERE SHALL BE A 6 INCH DOUBLE OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
 - INSPECTION SHALL BE MADE EVERY TWO WEEKS OR AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE PROMPTLY AS NEEDED.
 - SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
 - ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 3 INCHES. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

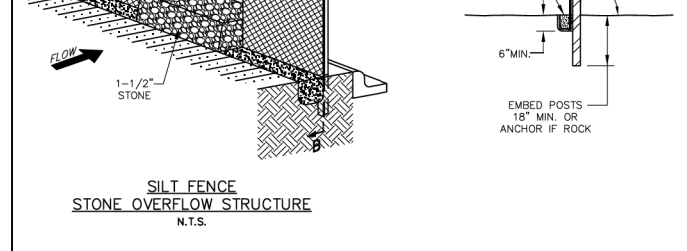
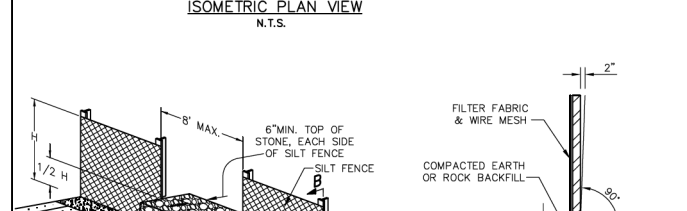
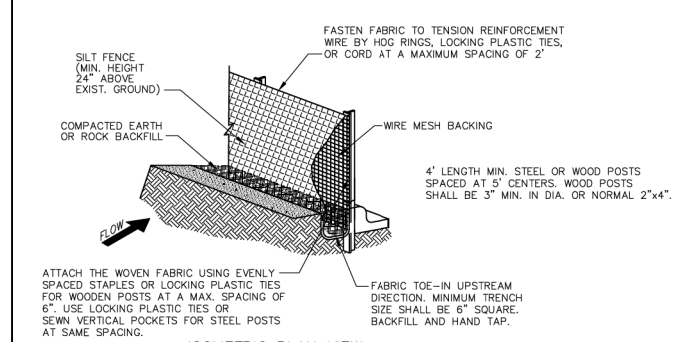


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PUBLIC WORKS DEPARTMENT

EROSION CONTROL & SILT FENCE NOTES

STANDARD CONSTRUCTION DETAILS
EROSION CONTROL

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-E001

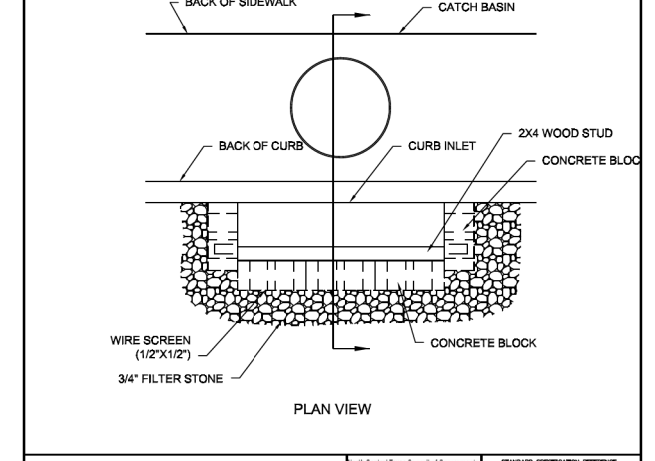
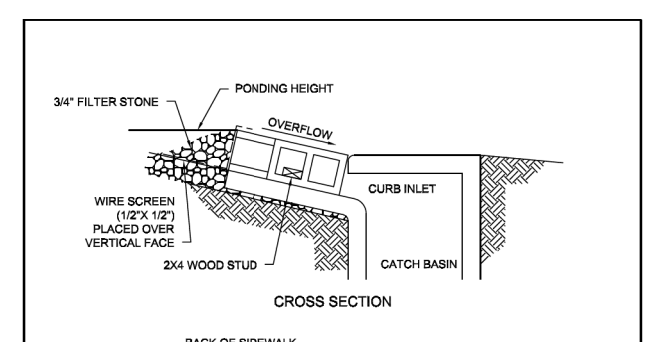


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PUBLIC WORKS DEPARTMENT

SILT FENCE DETAIL

STANDARD CONSTRUCTION DETAILS
EROSION CONTROL

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-E002

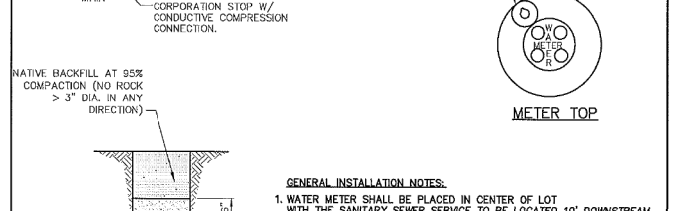
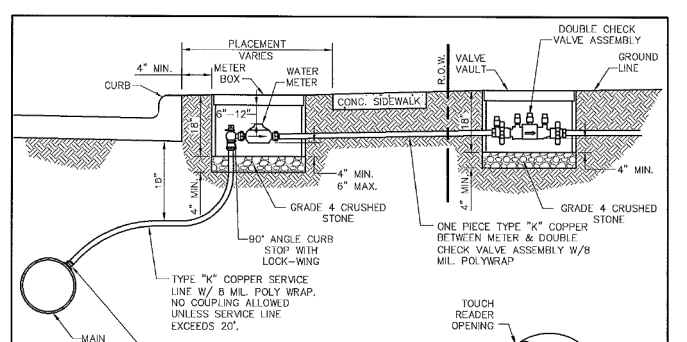


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PUBLIC WORKS DEPARTMENT

INLET PROTECTION-CURB

STANDARD CONSTRUCTION DETAILS
EROSION CONTROL

DATE: OCT. '04 REV. DATE: - SHEET: SD-E003



GENERAL INSTALLATION NOTES:

- WATER METER SHALL BE PLACED IN CENTER OF LOT WITH THE SANITARY SEWER SERVICE TO BE LOCATED 10' DOWNSTREAM.
- METER AND BOX SHALL BE SET BY THE CONTRACTOR TO ADDISON STANDARDS IN ALL CASES.
- THE METER BOX SHALL BE SET WITHIN THE R.O.W. OR A DEDICATED UTILITY EASEMENT. IN ALL CASES, THE METER BOX SHALL BE PROTECTED FROM VEHICULAR TRAFFIC.
- WATER SERVICES SHALL NOT BE CONNECTED TO DEAD END LINES OR FIRE HYDRANT LEADS.
- ALL MATERIALS SHALL CONFORM TO THE TOWN OF ADDISON WATER SYSTEM REQUIREMENTS.

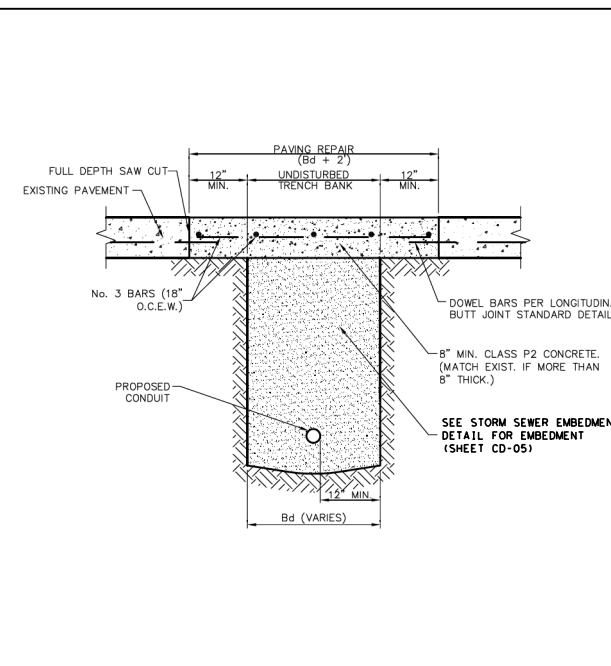
Type "K" Copper Service Pipe.	Double Strap Bronze Service Saddle with C.C. Threads	Galvanized Meter Box With Iron Ring & Cover		East Jordan Iron Works	
Min. Dia.	Covers & Rings	Min. Ht.	Min. Can Weight	Min. Total Weight	
3/4 inch	3/4 inch	18 inches	12 1/2 inches	18 inches	13 lbs.
1 inch	1 inch	24 inches	20 inches	18 inches	17 lbs.
1 1/2 inch	1 1/2 inch	28 inches	20 inches	18 inches	20 lbs.
2 inch	2 inch	28 inches	20 inches	18 inches	20 lbs.

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SERVICE CONNECTION WITH METER BOX

STANDARD CONSTRUCTION DETAILS
WATER

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-E004



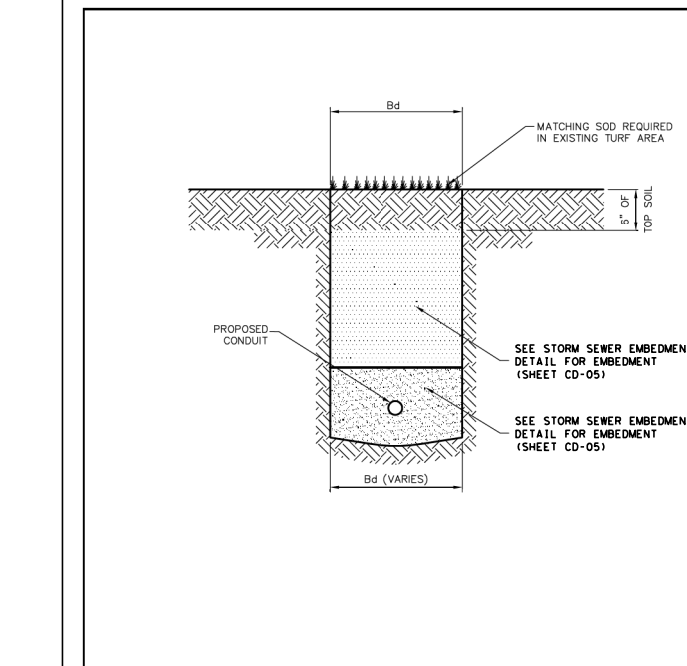
- NOTES:**
- REPAIRS SHALL EXTEND TO 1' BEYOND EACH SIDE OF TRENCH (Bd).
 - REINFORCEMENT CHAIRS OR APPROVED DEVICE SHALL BE USED.
 - REPAIRS SHALL MATCH EXISTING GRADE.

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UTILITY INSTALLATION BENEATH CONCRETE ROAD SURFACE

STANDARD CONSTRUCTION DETAILS
UTILITIES TRENCHLINE & STREET RESTORATION

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-U01



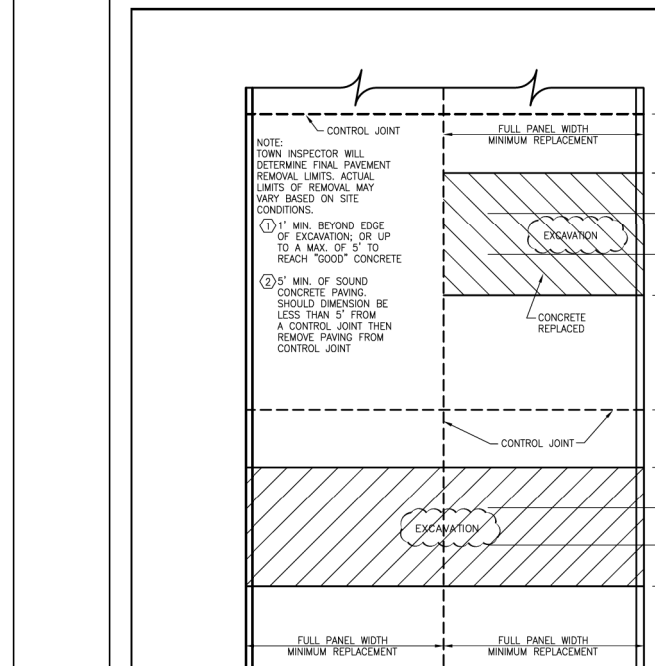
- NOTES:**
- ALL DISTURBED AREAS SHALL BE SODDED (UNLESS OTHERWISE APPROVED).
 - BACKFILL AND EMBEDMENT PARTICLE SIZE SHALL NOT EXCEED 3" ANY DIRECTION.

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UTILITY INSTALLATION WITHIN TURF AREAS

STANDARD CONSTRUCTION DETAILS
UTILITIES TRENCHLINE & STREET RESTORATION

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-U04



- NOTES:**
- ALL DISTURBED AREAS SHALL BE SODDED (UNLESS OTHERWISE APPROVED).
 - BACKFILL AND EMBEDMENT PARTICLE SIZE SHALL NOT EXCEED 3" ANY DIRECTION.

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PUBLIC WORKS DEPARTMENT

STREET CUT REPAIRS EXAMPLE 1

STANDARD CONSTRUCTION DETAILS
UTILITIES TRENCHLINE & STREET RESTORATION

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-U05

STATE OF TEXAS
BROOK D. RETTA
131068
LICENSED PROFESSIONAL ENGINEER
Nov 07, 2019

REVISIONS

REV NO.	DATE	DESCRIPTION	BY
1			
2			

ADDISON

CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

CONSTRUCTION DETAILS SHEET 1 OF 6

OAKS NORTH DRIVE DRAINAGE IMPROVEMENTS

TOWN OF ADDISON, TEXAS

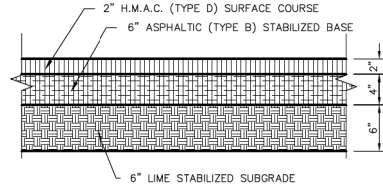
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DATE: 11/7/2019
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PAVING - GENERAL NOTES

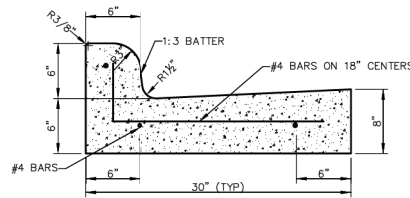
- GENERAL: PAVEMENT THICKNESS IS AS SHOWN IN ITEM 7. SUBGRADE DESIGN SHALL CONFORM TO TOWN OF ADDISON PUBLIC WORKS REQUIREMENTS IN ITEM 3, AND SHALL EXTEND 12" MIN. BEHIND THE BACK OF CURB.
- REINFORCED CONCRETE PAVEMENT:
 - CONCRETE STRENGTH SHALL BE AS SHOWN IN ITEM 7 (NCTCOG LATEST EDITION).
 - ALL CURBS SHALL BE INTEGRAL WITH PAVEMENT AND SHALL BE OF THE SAME STRENGTH AS CONCRETE PAVEMENT.
 - DETAIL AND ARRANGEMENT OF PAVEMENT JOINTS, ALL TYPES, SHALL BE AS SHOWN ON THE TOWN STANDARD CONSTRUCTION DETAILS.
 - BAR LAPS SHALL BE THIRTY DIAMETERS.
 - REINFORCING STEEL SHALL BE #3 REBAR (3/8") ON 18" CENTERS FOR 8" OR LESS. #4 FOR 10" OR ABOVE.
- SUBGRADE: SUBGRADE UNDER ALL PAVEMENT SHALL BE 6" THICK AND SHALL BE STABILIZED WITH AT LEAST 30 LBS. PER SQ. YD. HYDRATED LIME, COMPACTED TO A DENSITY NOT LESS THAN 95 PERCENT. LABORATORY TESTS MUST BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT FOR APPROVAL TO DETERMINE AMOUNT OF LIME REQUIRED. LABORATORY TEST MAY BE WAIVED PROVIDED AT LEAST 38 LBS. OF LIME PER SQ. YD. IS USED. SEE NCTCOG ITEM 301.2 "LIME TREATMENT" FLEXIBLE BASE (CRUSHED STONE/CONCRETE) PER NCTCOG ITEM 301.5 MAY BE SUBSTITUTED FOR LIME TREATMENT WITH THE APPROVAL OF THE TOWN ENGINEER.
- REBAR SHALL BE SUPPORTED BY BAR CHAIRS OR OTHER DEVICES APPROVED BY TOWN ENGINEER.
- NO TRAFFIC ON FINISHED SUBGRADE SHALL BE PERMITTED AFTER REINFORCING STEEL IS INSTALLED ABOVE SUBGRADE. NO TRAFFIC SHALL BE PERMITTED BEFORE OR DURING THE PLACING OF CONCRETE.
- CROSS SLOPE OF STRAIGHT CROWN STREETS SHALL BE 1/4" PER FOOT UNLESS APPROVED BY THE TOWN ENGINEER.
- PAVEMENT THICKNESS AND STRENGTHS SHALL BE AS FOLLOWS:

MAJOR ARTERIAL - 10" CLASS "P1" OR "P2."
MINOR ARTERIAL - 8" CLASS "P1" OR "P2."
COMMERCIAL/INDUSTRIAL COLLECTOR - 8" CLASS "P1" OR "P2."
RESIDENTIAL COLLECTOR - 8" CLASS "P1" OR "P2."
RESIDENTIAL LOCAL - 8" CLASS "P1" OR "P2."
SIDEWALK AND DRIVE - 4" CLASS "A"
DRIVE APPROACH - 8" CLASS "P2"
ALLEY - 6" CLASS "P1" OR "P2."
- CONCRETE MIX DESIGN SHALL BE AS DEFINED BY NCTCOG 303.3.
- ALL MEDIANS AND PARKWAYS SHALL BE PROVIDED WITH BERMUDA GROUND COVER.
- ONCE A CURB ABUTTING A THOROUGHFARE HAS BEEN SAWCUT AND REMOVED, THE CONTRACTOR MUST REPLACE THE CONCRETE WITH A NEW POUR (I.E. DRIVEWAY) WITHIN 14 CALENDAR DAYS. LIQUIDATED DAMAGES WILL BE ASSESSED AT \$500 PER DAY FOR EACH CALENDAR DAY IN EXCESS OF 14 CALENDAR DAYS. PAYMENT SHALL BE MADE PRIOR TO ACCEPTANCE OR ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- ALL SIDEWALKS AND ACCESSIBLE ROUTES SHALL HAVE A MAXIMUM LONGITUDINAL SLOPE OF 5% AND A MAXIMUM CROSS SLOPE OF 2%.
 - CONCRETE FOR ALLEY RETURNS AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS IDENTICAL TO THAT SPECIFIED FOR THE STREET PAVEMENT OR BASE WHEN BUILT AS COMPONENTS OF A CONCRETE PAVING PROJECT. WHEN BUILT SEPARATELY, THE STRENGTH SHALL BE AS SPECIFIED ON THE CONSTRUCTION PLAN.
 - SPACING AND CONSTRUCTION OF JOINTS SHALL CONFORM TO PARABOLIC STREET PAVEMENT.

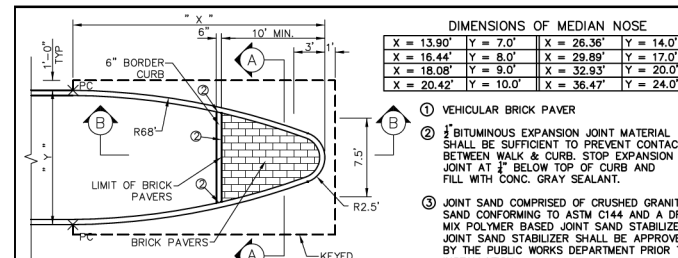


ASPHALT PAVING CROSS SECTION

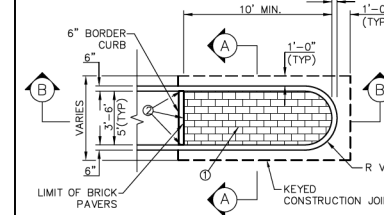
NOTE: CUT OF 8" INTO EXISTING PAVEMENT IS REQUIRED FOR CONSTRUCTION JOINT WITH NEW POURS TO GET A SMOOTH FINISH.



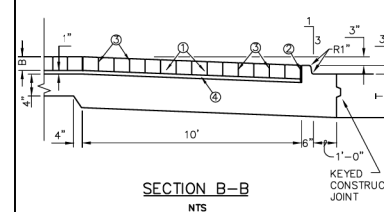
CURB AND GUTTER & ASPHALT PAVING CROSS SECTION



DETAIL FOR MEDIAN WIDER THAN 6' (Y > 6')



DETAIL FOR MEDIAN 3'-0" TO 6'-0"



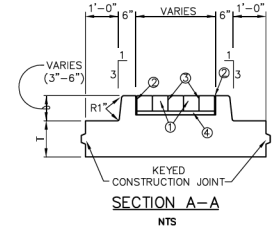
SECTION B-B

DIMENSIONS OF MEDIAN NOSE

X = 13.90'	Y = 7.0'	X = 26.36'	Y = 14.0'
X = 16.44'	Y = 8.0'	X = 28.89'	Y = 17.0'
X = 18.08'	Y = 9.0'	X = 32.93'	Y = 20.0'
X = 20.42'	Y = 10.0'	X = 36.47'	Y = 24.0'

- VEHICULAR BRICK PAVER
- BITUMINOUS EXPANSION JOINT MATERIAL SHALL BE SUFFICIENT TO PREVENT CONTACT BETWEEN WALK & CURB. STOP EXPANSION JOINT AT 1/2" BELOW TOP OF CURB AND FILL WITH CONC. GRAY SEALANT.
- JOINT SAND COMPRISED OF CRUSHED GRANITE SAND CONFORMING TO ASTM C144 AND A DRY MIX POLYMER BASED JOINT SAND STABILIZER. JOINT SAND STABILIZER SHALL BE APPROVED BY THE PUBLIC WORKS DEPARTMENT PRIOR TO INSTALLATION.
- BEDDING SAND COMPRISED OF 90% NATURAL OR CRUSHED GRANITE SAND CONFORMING TO ASTM C33 AND 10% PORTLAND CEMENT.

T=PAVEMENT THICKNESS
B=BRICK PAVER THICKNESS

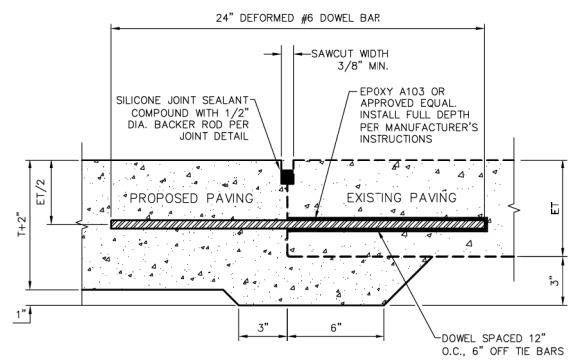


- NOTES:
- BRICK PAVERS SHALL BE VEHICULAR PAVERS CONFORMING TO ASTM C1272. TYPE R APPLICATION AND SHALL BE APPROVED BY PUBLIC WORKS DEPT.
 - BRICK PAVERS SHALL BE WITHOUT FROGS OR CORES IN SURFACE EXPOSED TO VIEW IN THE COMPLETED WORK.
 - MEDIAN PAVERS SHALL EXTEND TO A POINT WHERE MEDIAN IS AT LEAST 6' WIDE. IF MEDIAN IS 6' WIDE, PAVERS SHALL EXTEND 10' FROM THE NOSE.
 - ALL DISTANCES ARE MINIMUM.

MEDIAN DETAILS

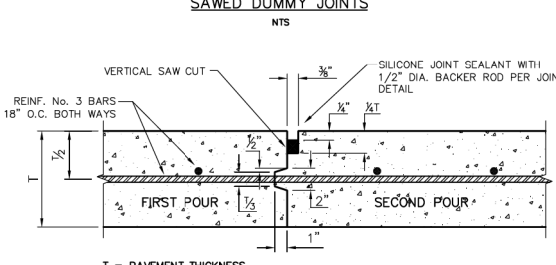
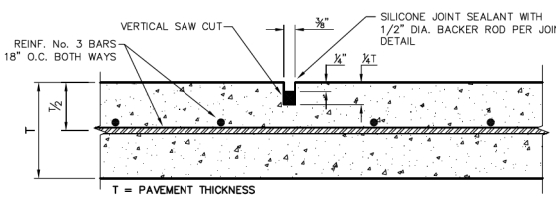
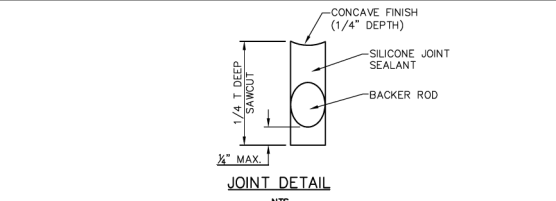
STANDARD CONSTRUCTION DETAILS PAVING

DATE:	REV DATE:	SHEET:
AUGUST, 2010	-	SD-P14



PAVEMENT REPAIR HEADER

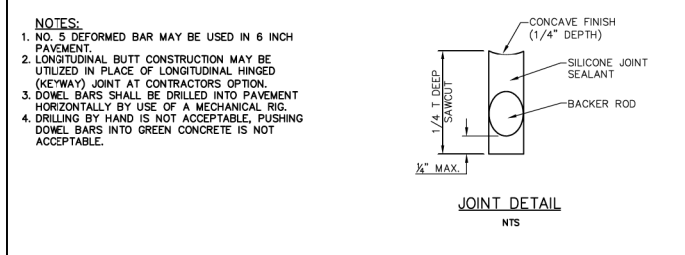
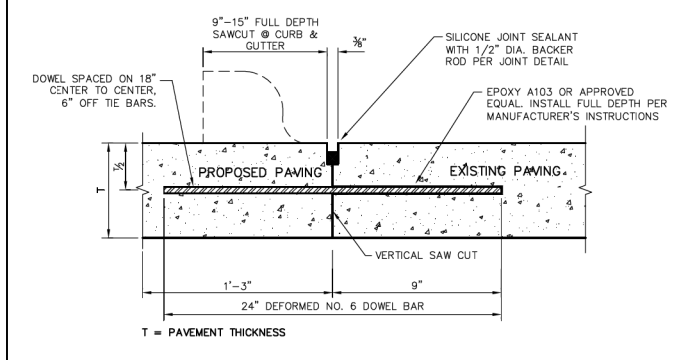
- NOTES:
- NO. 5 DEFORMED DOWEL BAR MAY BE USED IN 6 INCH PAVEMENT.
 - DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG.
 - DRILLING BY HAND IS NOT ACCEPTABLE. PUSHING DOWEL BARS INTO GREEN CONCRETE IS NOT ACCEPTABLE.
- T=PROPOSED PAVEMENT THICKNESS
ET=EXISTING PAVEMENT THICKNESS



CONSTRUCTION JOINTS FOR PAVEMENT

TRANSVERSE AND LONGITUDINAL JOINTS

NOTE: CONTRACTOR SHALL PROTECT KEYWAY PRIOR TO SECOND POUR. IF LONGITUDINAL KEYWAY IS DAMAGED, CONTRACTOR SHALL REPAIR WITH THE USE OF LONGITUDINAL BUTT JOINT. DRILL AND GROUT DOWELS INTO FIRST POUR.



- NOTES:
- NO. 5 DEFORMED BAR MAY BE USED IN 6 INCH PAVEMENT.
 - LONGITUDINAL BUTT CONSTRUCTION MAY BE UTILIZED IN PLACE OF LONGITUDINAL HINGED (KEYWAY) JOINT AT CONTRACTOR'S OPTION.
 - DOWEL BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF A MECHANICAL RIG.
 - DRILLING BY HAND IS NOT ACCEPTABLE. PUSHING DOWEL BARS INTO GREEN CONCRETE IS NOT ACCEPTABLE.

LONGITUDINAL BUTT JOINT

LONGITUDINAL BUTT JOINT

STANDARD CONSTRUCTION DETAILS PAVING

DATE:	REV DATE:	SHEET:
AUGUST, 2010	-	SD-P18



REVISIONS

REV NO.	DATE	DESCRIPTION	BY
1			
2			

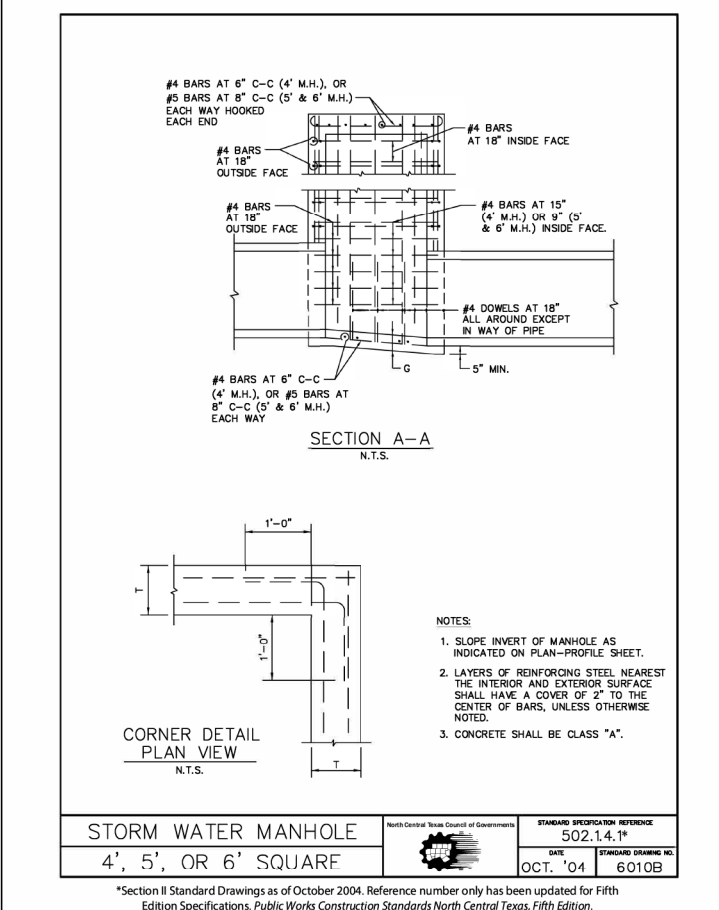
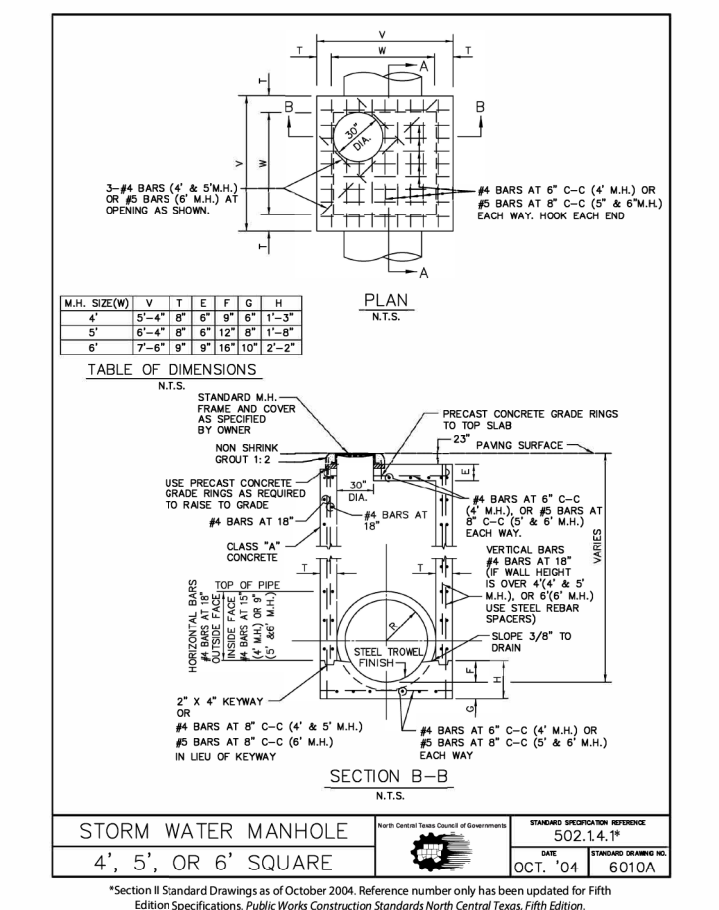
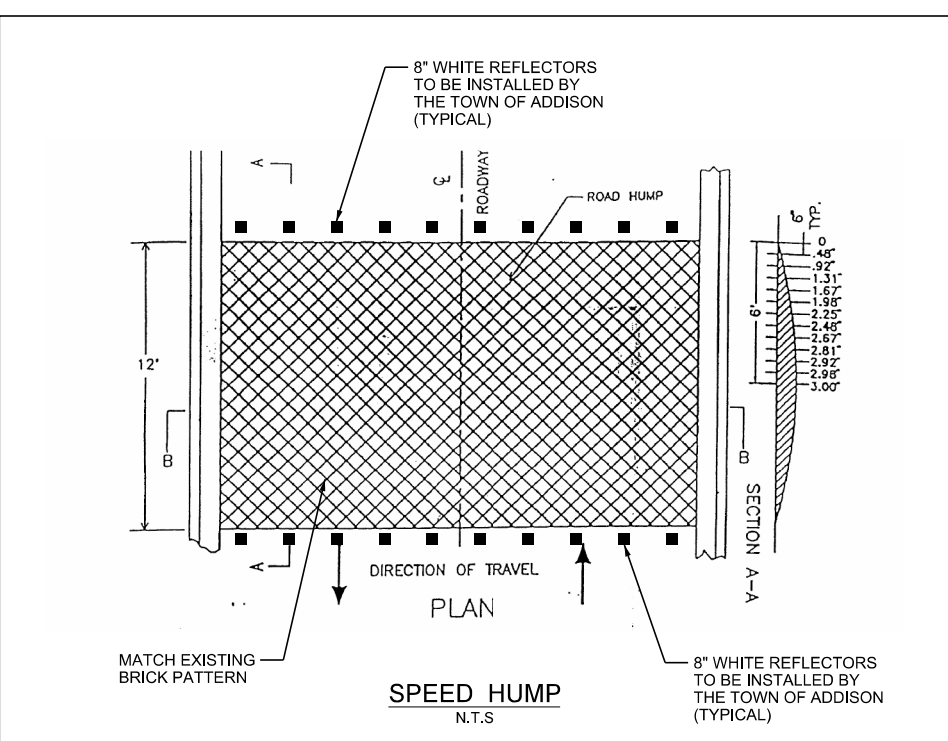
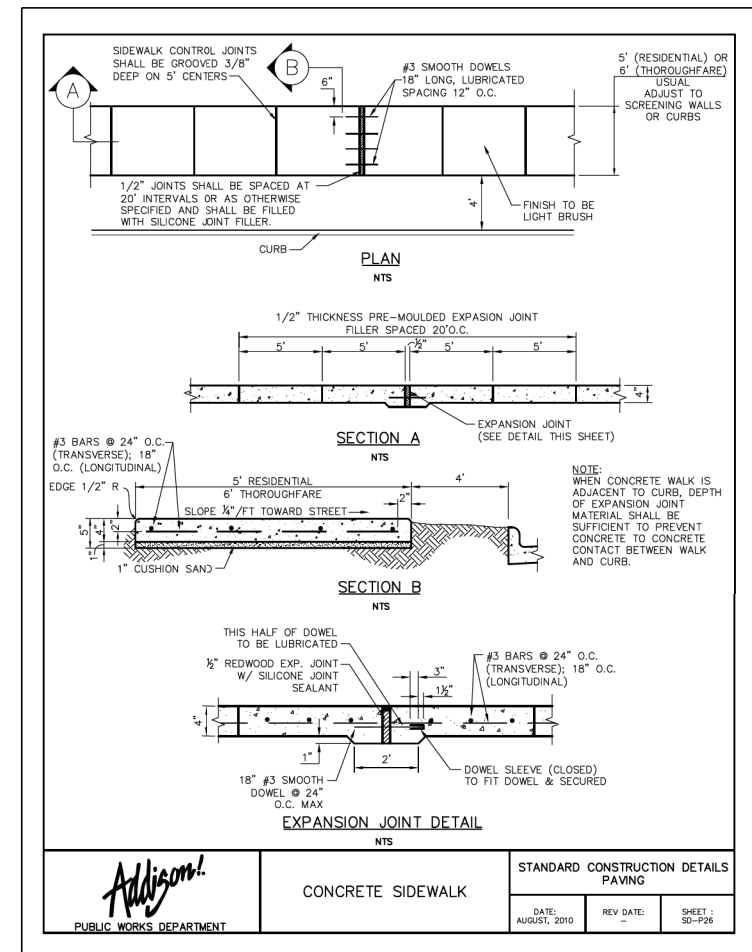
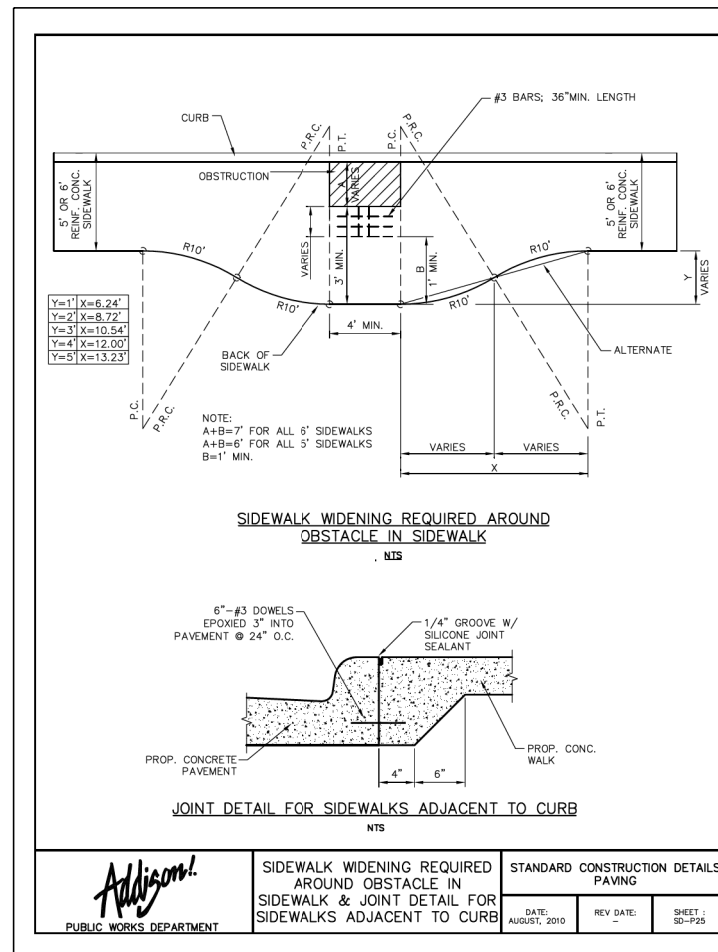
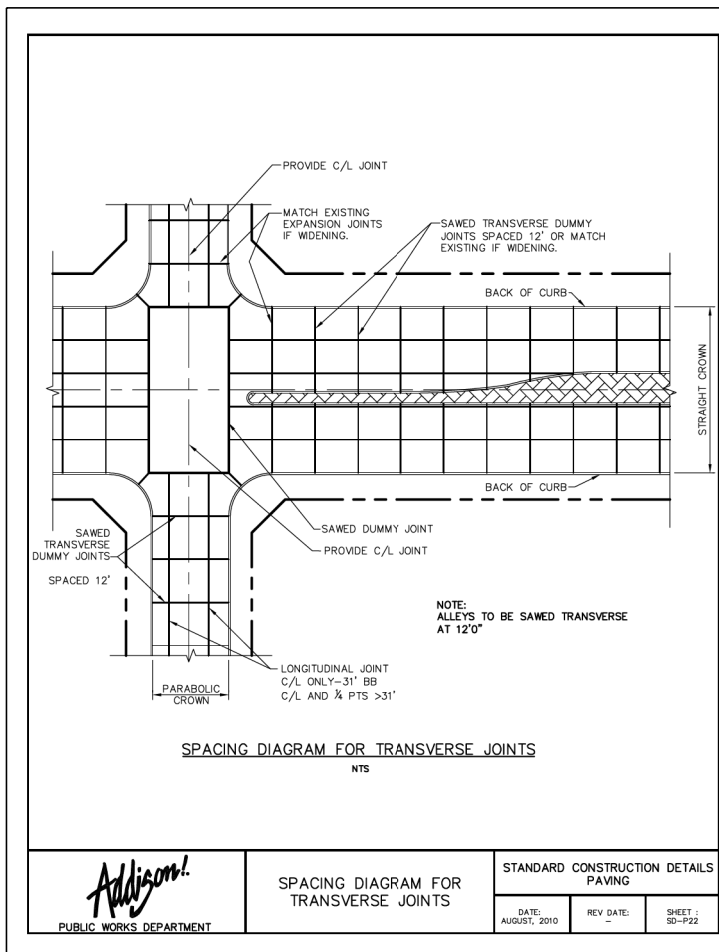
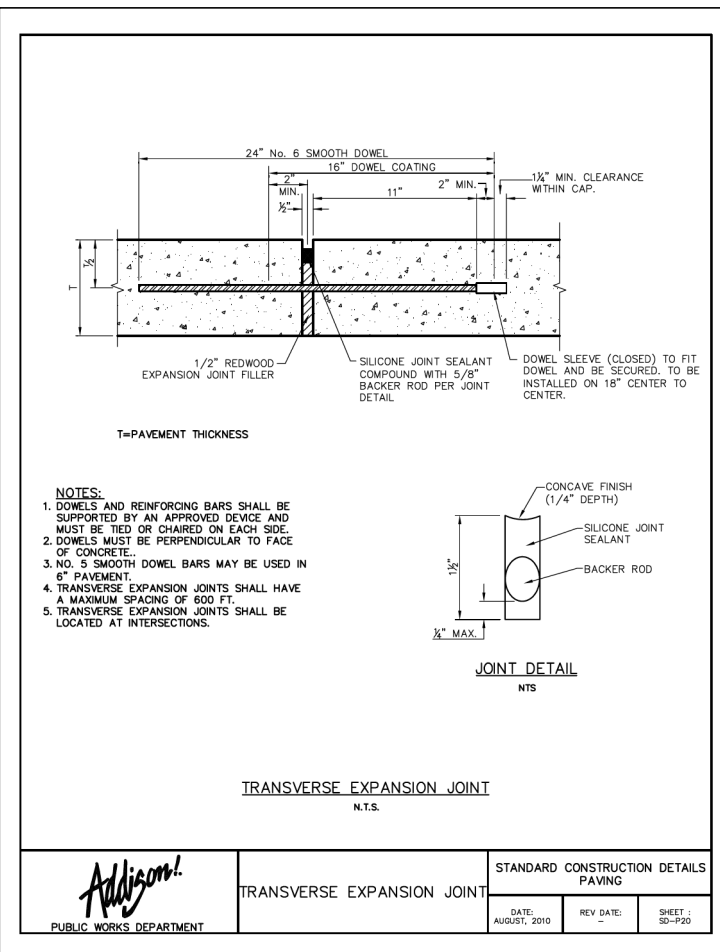


CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001 DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

CONSTRUCTION DETAILS SHEET 2 OF 6
OAKS NORTH DRIVE DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DETAILS	CD-02

DATE: 11/7/2019 TIME: 10:24:24 PM FILE NAME: N:\PROJECTS\R14285.00_Addison_2017 Various Projects\R14285.01_White Rock Drainage\07_DON0706_Sheets\1428501_Details.dgn



STATE OF TEXAS
BROOK D. RETTA
 131068
 LICENSED PROFESSIONAL ENGINEER
 Nov 07, 2019

REV. NO.	DATE	DESCRIPTION	BY
1			
2			

ADDISON

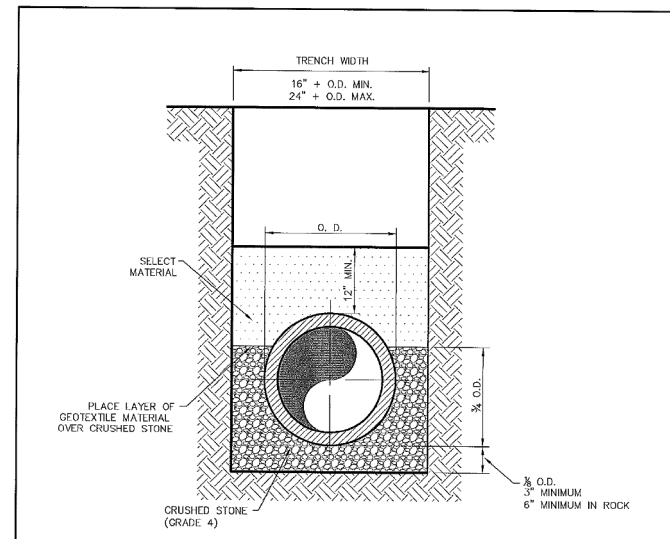
CRIADO 4100 SPRING VALLEY ROAD, SUITE 1001
 DALLAS, TX 75244
 O: 972-392-9092 F: 972-392-9192
 FIRM NO. F-4373

CONSTRUCTION DETAILS
SHEET 3 OF 6

OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
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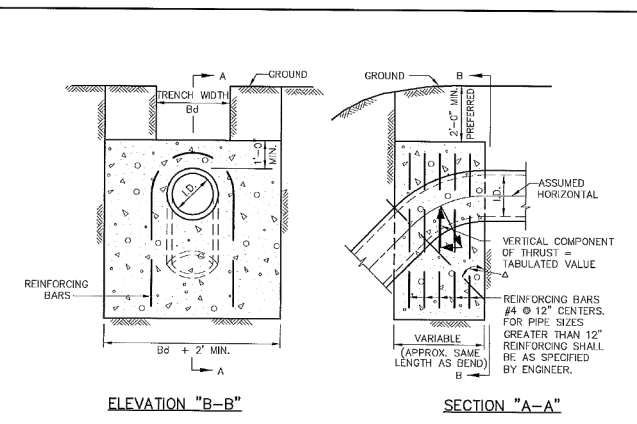
CLASS "B+" EMBEDMENT
CRUSHED STONE SHALL BE 3/4", PASSING # 4 SIEVE
TYPICAL P.V.C. WATER MAIN EMBEDMENT

Addison!
PUBLIC WORKS DEPARTMENT

P.V.C. WATER MAIN EMBEDMENT

STANDARD CONSTRUCTION DETAILS WATER

DATE: AUGUST, 2010 REV DATE: SHEET: SD-W01



VERTICAL THRUST BLOCK

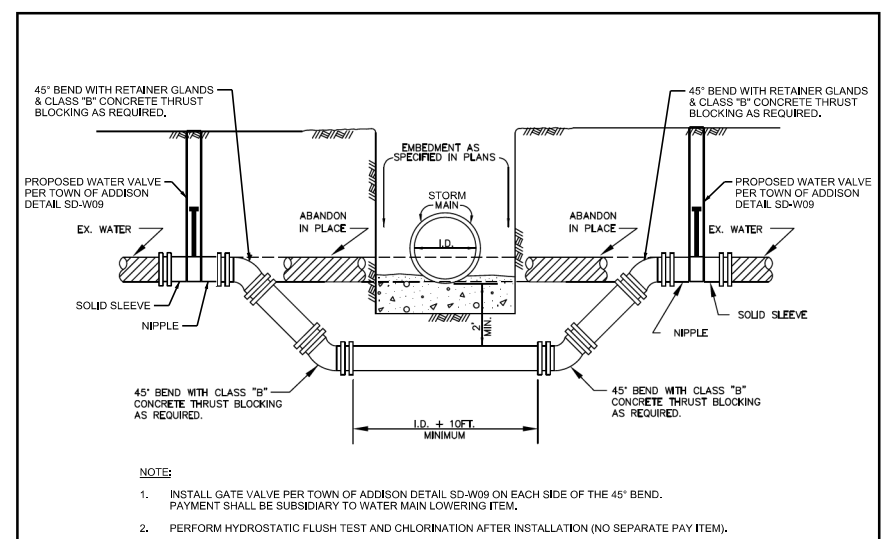
A	11.25'	22.50'	30'	45'	67.50'	90'	A										
I.D. (IN.)	4.5,8	10,12	16,18	20	24	30	36	42	48	54	60	66	72	78	84	90	96
THRUST (TONS)	1.0	2.2	4.9	8.2	10.5	14.8	20.3	26.5	33.5	41.4	50.1	59.9	69.9	81.1	93.1	108.0	
VOL. (C.Y.)	0.5	1.1	2.5	4.4	5.2	7.5	10.1	13.2	16.8	20.7	25.0	29.8	35.0	41.0	48.5	53.0	

Addison!
PUBLIC WORKS DEPARTMENT

VERTICAL THRUST BLOCK AT PIPE BEND

STANDARD CONSTRUCTION DETAILS WATER

DATE: AUGUST, 2010 REV DATE: SHEET: SD-W08

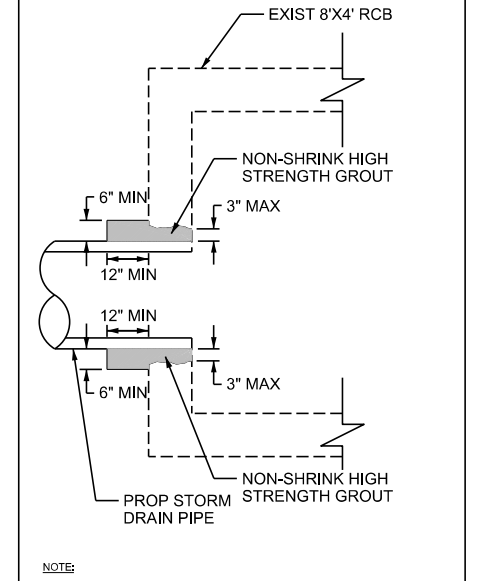


WATER MAIN LOWERING
BELOW STORM MAIN

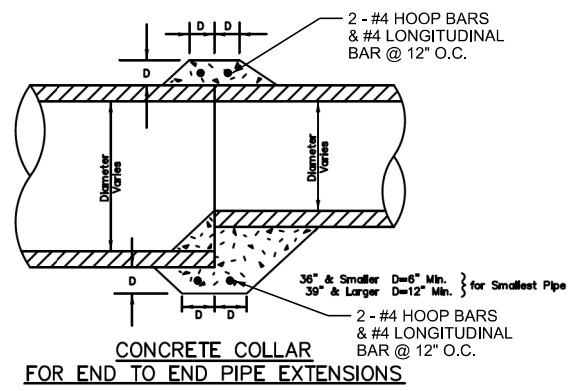
North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE 506.6

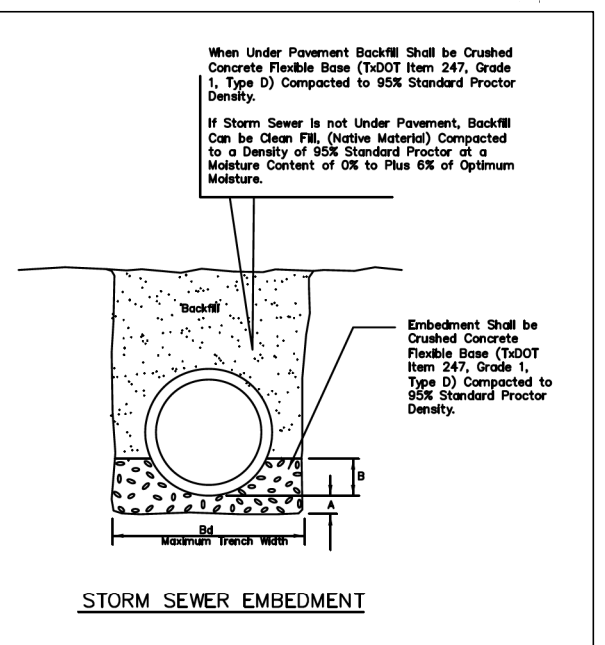
DATE: OCT. '04 STANDARD DRAWING NO. 4200



CONNECTION TO EX. 8' x 4' RCB DETAIL N.T.S

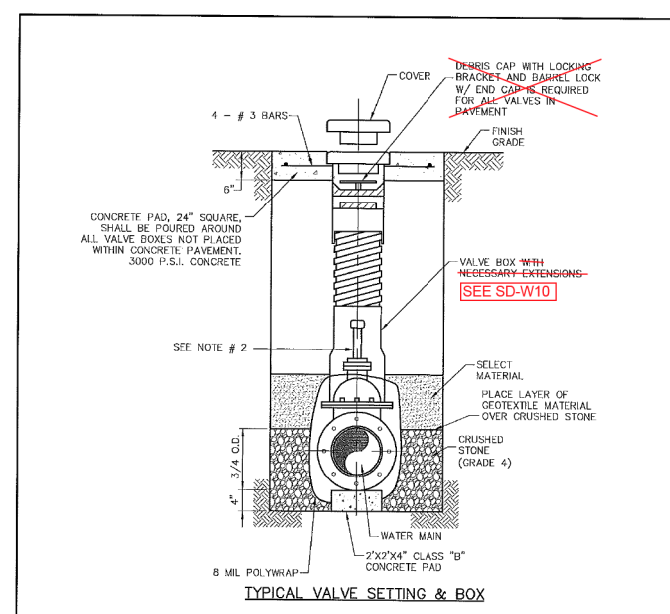


Pipe Dia. (in.)	Bd. (in.)	A (in.)	B (1/4 O.D.) (in.)
15	35	4	5
18	39	4	6
21	42	4	7
24	46	4	7
27	49	5	8
30	53	5	9
33	57	5	10
36	60	5	11
39	72	6	12
42	75	6	13
45	78	6	14
48	82	7	15
51	85	7	15
54	89	8	16
60	96	8	18
66	102	8	20
72	108	8	22
78	114	8	23
84	120	8	25
90	126	8	27
96	132	8	29



STANDARD CONSTRUCTION DETAILS WATER

DATE: JANUARY 2017 REV DATE: SHEET: SD-W10

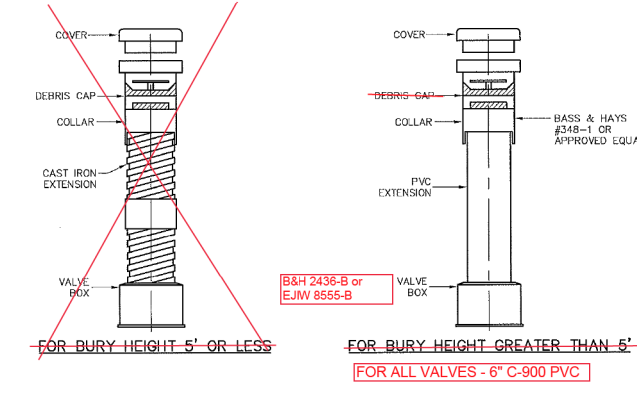


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VALVE SETTING BOX

STANDARD CONSTRUCTION DETAILS WATER

DATE: AUGUST, 2010 REV DATE: 04/06/17 SHEET: SD-W09



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PUBLIC WORKS DEPARTMENT

VALVE BOX WITH EXTENSION

STANDARD CONSTRUCTION DETAILS WATER

DATE: JANUARY 2017 REV DATE: SHEET: SD-W10

STATE OF TEXAS
BROOK D. RETTA
131068
LICENSED PROFESSIONAL ENGINEER
Nov 07, 2019

REVISIONS

REV NO.	DATE	DESCRIPTION	BY
1			
2			

ADDISON

4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

CONSTRUCTION DETAILS
SHEET 5 OF 6
OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DETAILS	CD-05

DATE: 11/7/2019 TIME: 1:07:39 PM FILE NAME: N:\PROJECTS\R14285.01_White_Rock_Drainage\07_DON0706_SheetR1428501_Details.dgn

GENERAL NOTES FOR PEDESTRIAN FACILITIES

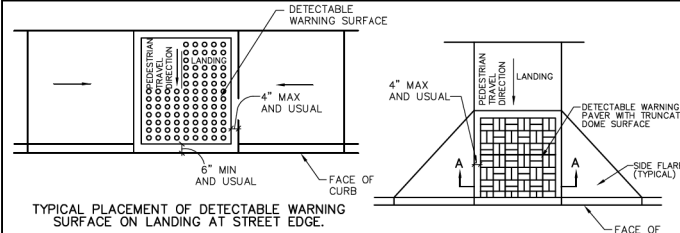
1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
2. LANDINGS SHALL BE 5'x5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMP SHALL BE A MINIMUM OF 4'x4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
3. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
4. CURB RAMP WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
5. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC §68.102.
6. CURB RAMP SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE TOWN ENGINEER.
7. HANDRAILS ARE NOT REQUIRED ON CURB RAMP. PROVIDE CURB RAMPS WHEREVER ON ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
8. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
9. BARRIER FREE RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS).
10. ALL BARRIER FREE RAMPS MUST PASS AN INDEPENDENT INSPECTION. A LETTER OF COMPLIANCE ACCEPTANCE IS REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE TOWN OF ADDISON.
11. STREETS ON STEEP GRADE WILL REQUIRE LONGER TRANSITION ON UPGRADE SIDE.
12. MAXIMUM SLOPE ON RAMP PORTION SHALL NOT EXCEED 1" PER FOOT AT ANY LOCATION. VERTICAL DISTANCE BETWEEN STREET AND RAMP SHALL NOT EXCEED 4".

GENERAL NOTES FOR DETECTABLE WARNINGS

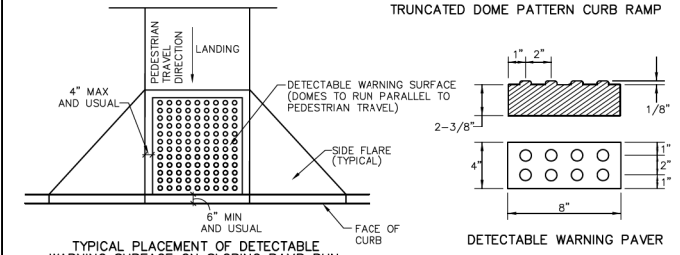
1. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSIST OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 4.29 OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH THE ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK RED COLORED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE AND CREAM COLORED DETECTABLE WARNING SURFACE ADJACENT TO DARK RED COLORED BRICK PAVERS.
2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
3. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
4. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
5. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 8" FROM THE EXTENSION OF THE FACE OF CURB AND SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADII.

GENERAL NOTES FOR DETECTABLE WARNING PAVER UNITS

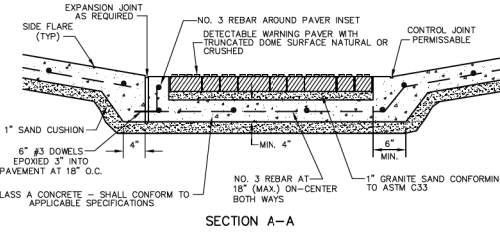
1. DETECTABLE WARNING PAVER UNITS SHALL MEET OR EXCEED ALL REQUIREMENTS OF ASTM C-936, C-33, AND BE LAID IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.
2. LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.



TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.

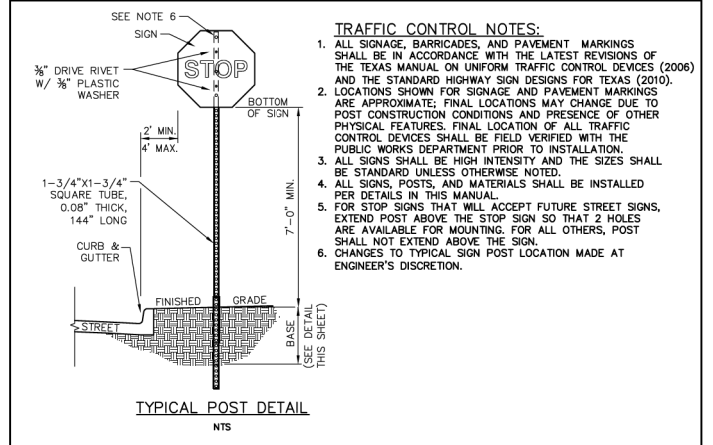


TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

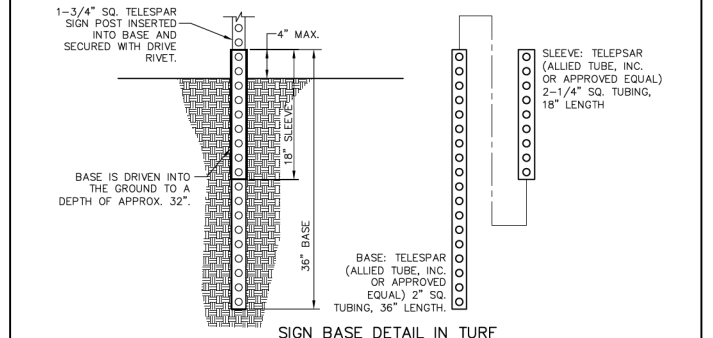


SECTION A-A

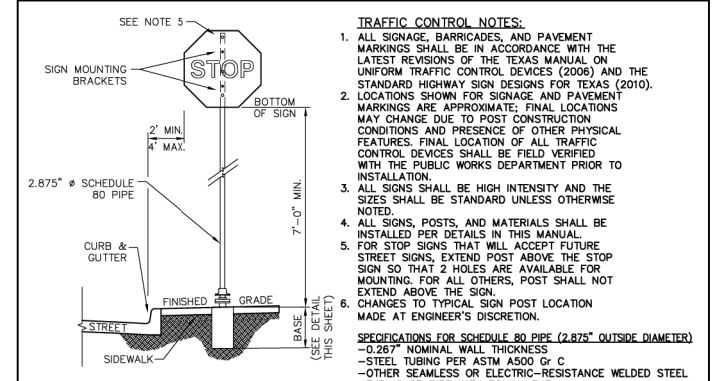
DETECTABLE WARNING PAVER (OPTION)



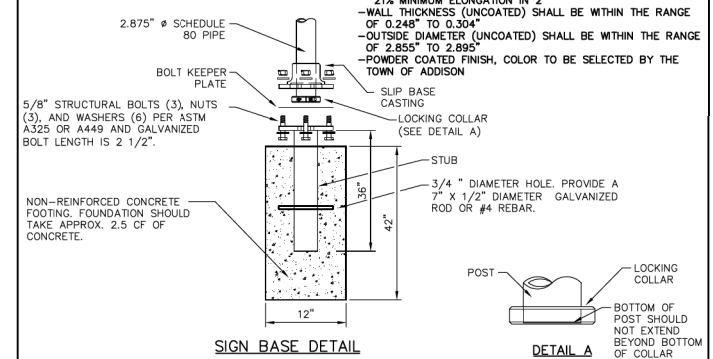
TYPICAL POST DETAIL



SIGN BASE DETAIL IN TURF



TYPICAL POST DETAIL



SIGN BASE DETAIL

- TRAFFIC CONTROL NOTES:**
1. ALL SIGNAGE, BARRICADES, AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2006) AND THE STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (2010).
 2. LOCATIONS SHOWN FOR SIGNAGE AND PAVEMENT MARKINGS ARE APPROXIMATE; FINAL LOCATIONS MAY CHANGE DUE TO POST CONSTRUCTION CONDITIONS AND PRESENCE OF OTHER PHYSICAL FEATURES. FINAL LOCATION OF ALL TRAFFIC CONTROL DEVICES SHALL BE FIELD VERIFIED WITH THE PUBLIC WORKS DEPARTMENT PRIOR TO INSTALLATION.
 3. ALL SIGNS SHALL BE HIGH INTENSITY AND THE SIZES SHALL BE STANDARD UNLESS OTHERWISE NOTED.
 4. ALL SIGNS, POSTS, AND MATERIALS SHALL BE INSTALLED PER DETAILS IN THIS MANUAL.
 5. FOR STOP SIGNS THAT WILL ACCEPT FUTURE STREET SIGNS, EXTEND POST ABOVE THE STOP SIGN SO THAT 2 HOLES ARE AVAILABLE FOR MOUNTING. FOR ALL OTHERS, POST SHALL NOT EXTEND ABOVE THE SIGN.
 6. CHANGES TO TYPICAL SIGN POST LOCATION MADE AT ENGINEER'S DISCRETION.
- SPECIFICATIONS FOR SCHEDULE 80 PIPE (2.875" OUTSIDE DIAMETER)**
- 0.267" NOMINAL WALL THICKNESS
 - STEEL TUBING PER ASTM A500 Gr C
 - OTHER SEAMLESS OR ELECTRIC-RESISTANCE WELDED STEEL TUBING OR PIPE WITH EQUIVALENT
 - OUTSIDE DIAMETER AND WALL THICKNESS MAY BE USED IF THEY MEET THE FOLLOWING:
 - 45,000 PSI MINIMUM YIELD STRENGTH
 - 62,000 PSI MINIMUM TENSILE STRENGTH
 - 21% MINIMUM ELONGATION IN 2"
 - WALL THICKNESS (UNCOATED) SHALL BE WITHIN THE RANGE OF 0.248" TO 0.304"
 - OUTSIDE DIAMETER (UNCOATED) SHALL BE WITHIN THE RANGE OF 2.855" TO 2.895"
 - POWDER COATED FINISH, COLOR TO BE SELECTED BY THE TOWN OF ADDISON

Addison! PUBLIC WORKS DEPARTMENT

PEDESTRIAN FACILITIES
GENERAL NOTES

STANDARD CONSTRUCTION DETAILS
PAVING

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-P37

Addison! PUBLIC WORKS DEPARTMENT

DETECTABLE WARNING PAVER

STANDARD CONSTRUCTION DETAILS
PAVING

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-P41

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SIGN POST IN TURF DETAIL

STANDARD CONSTRUCTION DETAILS
TRAFFIC

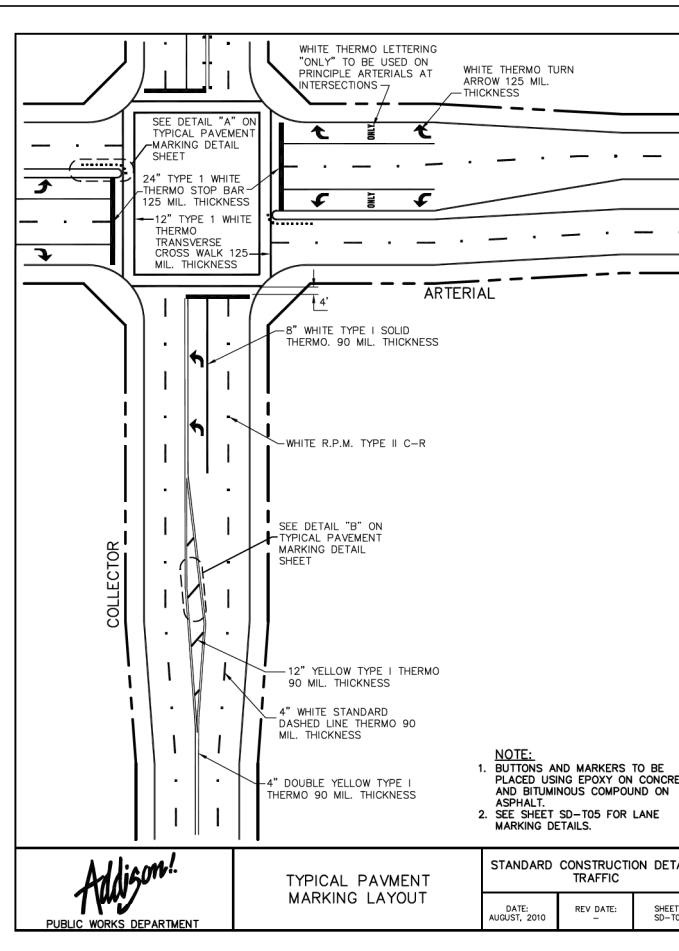
DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-T01

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SIGN POST IN SIDEWALK DETAIL

STANDARD CONSTRUCTION DETAILS
TRAFFIC

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-T02

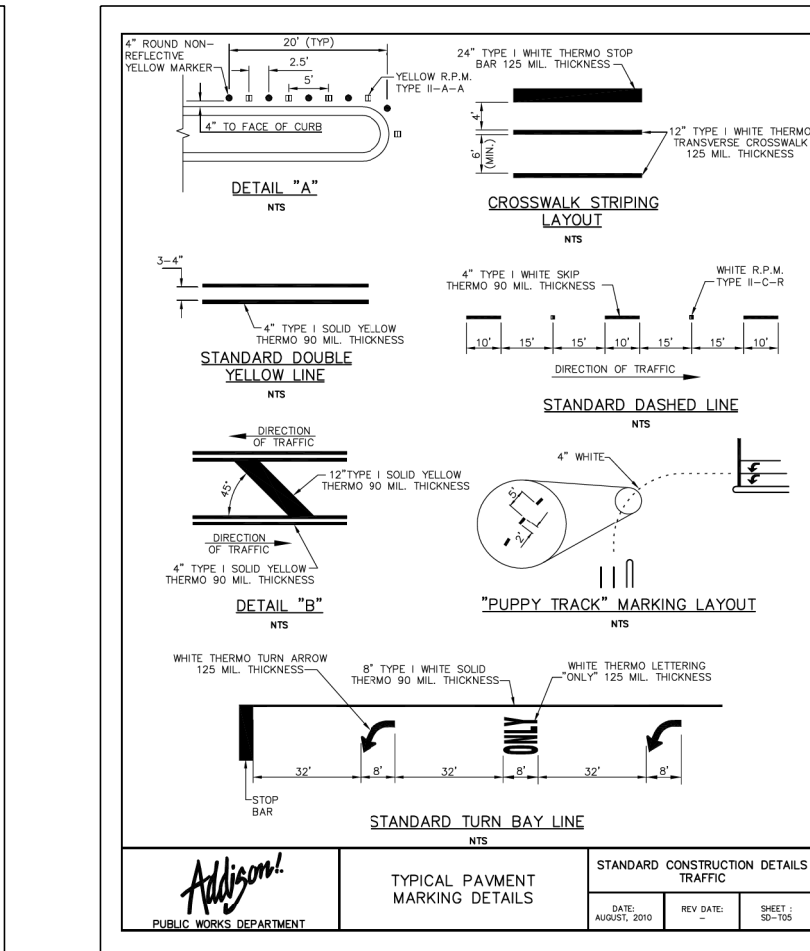


TYPICAL PAVEMENT MARKING LAYOUT

Addison! PUBLIC WORKS DEPARTMENT

STANDARD CONSTRUCTION DETAILS
TRAFFIC

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-T04

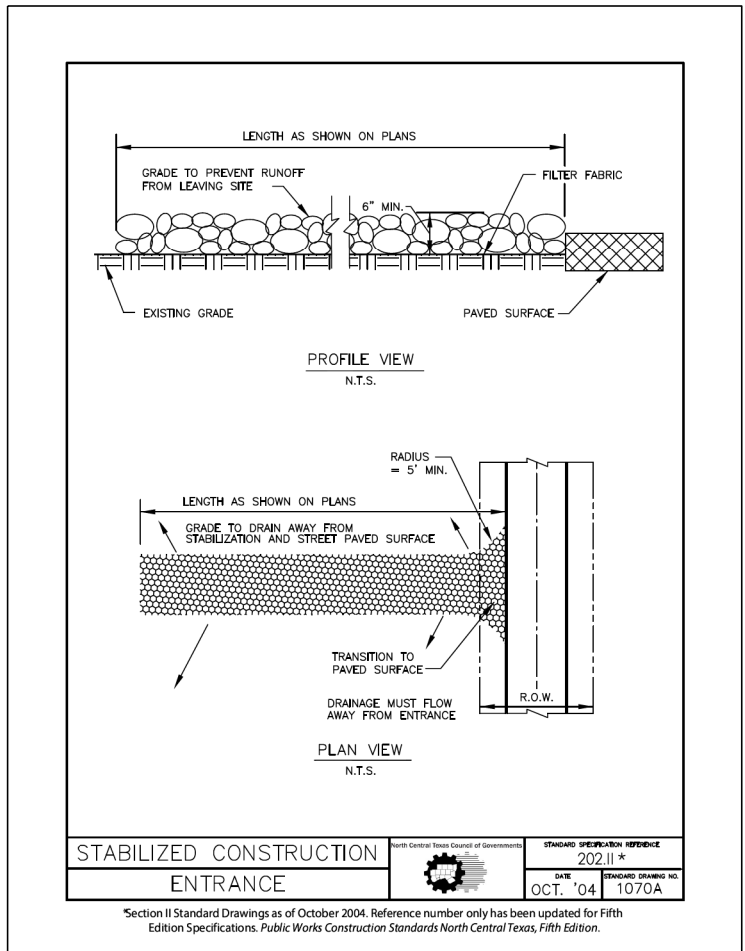


TYPICAL PAVEMENT MARKING DETAILS

Addison! PUBLIC WORKS DEPARTMENT

STANDARD CONSTRUCTION DETAILS
TRAFFIC

DATE: AUGUST, 2010 REV. DATE: - SHEET: SD-T05



STABILIZED CONSTRUCTION ENTRANCE

Addison! PUBLIC WORKS DEPARTMENT

STANDARD CONSTRUCTION DETAILS
TRAFFIC

DATE: OCT. '04 REV. DATE: - SHEET: SD-T0A

STATE OF TEXAS
BROOK D. RETTA
131068
LICENSED PROFESSIONAL ENGINEER
Nov 07, 2019

REVISIONS

REV. NO.	DATE	DESCRIPTION	BY
1			
2			

ADDISON

4100 SPRING VALLEY ROAD, SUITE 1001
DALLAS, TX 75244
O: 972-392-9092 F: 972-392-9192
FIRM NO. F-4373

CRIADO

CONSTRUCTION DETAILS
SHEET 6 OF 6

OAKS NORTH DRIVE
DRAINAGE IMPROVEMENTS
TOWN OF ADDISON, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CRIADO	CRIADO	NOV 2019	AS SHOWN	R14285.01	DETAILS	CD-06

DATE: 11/7/2019
TIME: 10:46:46 PM
FILE NAME: N:\PROJECTS\R14285.00_Addison_2017 Various Projects\R14285.01_White Rock Drainage\07_DON0706_Sheet61428501_Details.dgn

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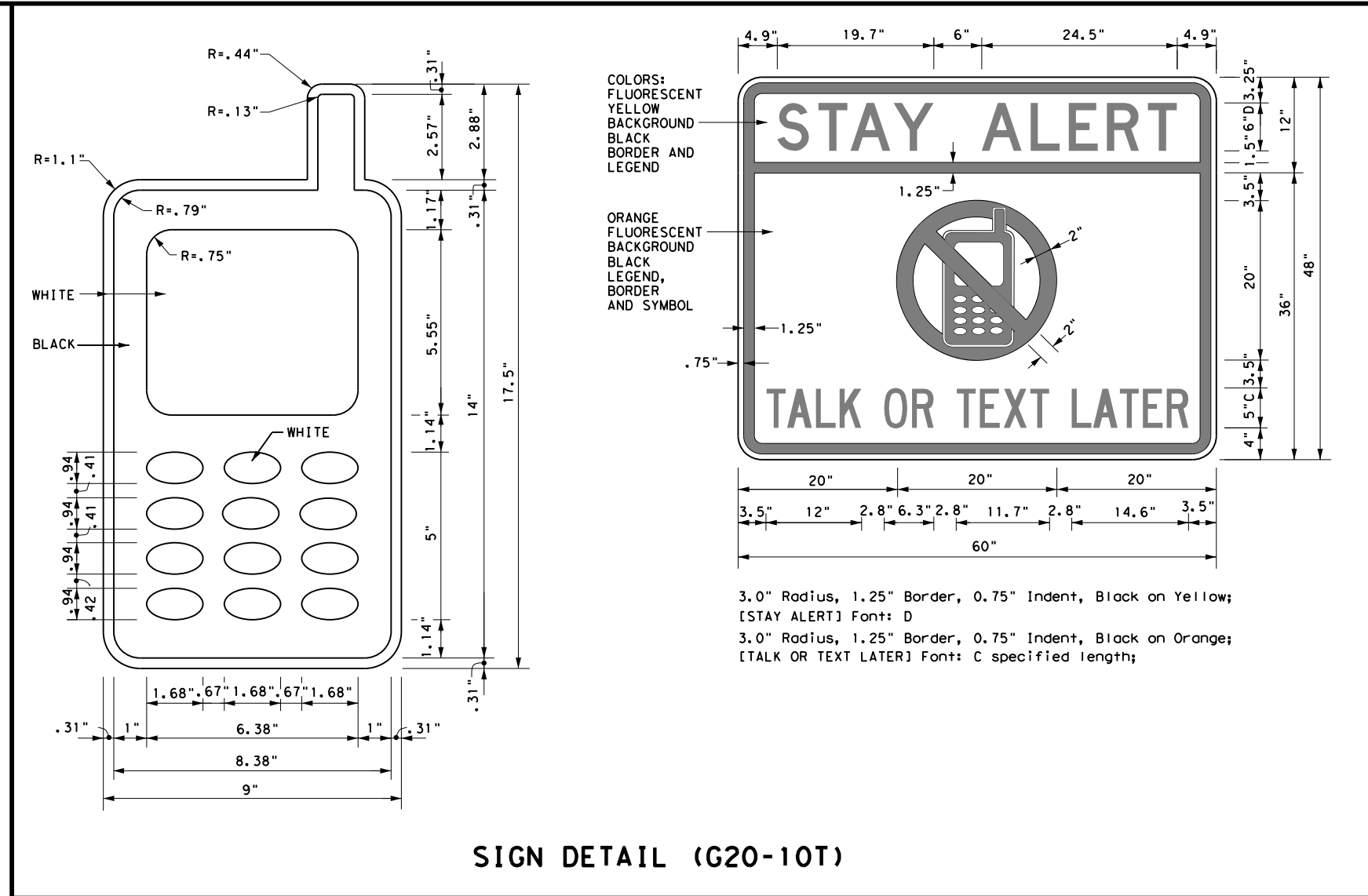
BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

- The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
- The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
- Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
- When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
- The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
- All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
- The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
- As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.
- Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.
- The Engineer has the final decision on the location of all traffic control devices.
- Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY APPAREL NOTES:

- Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

DATE:
FILE:



Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
 Traffic Operations Division - TE
 Phone (512) 416-3118

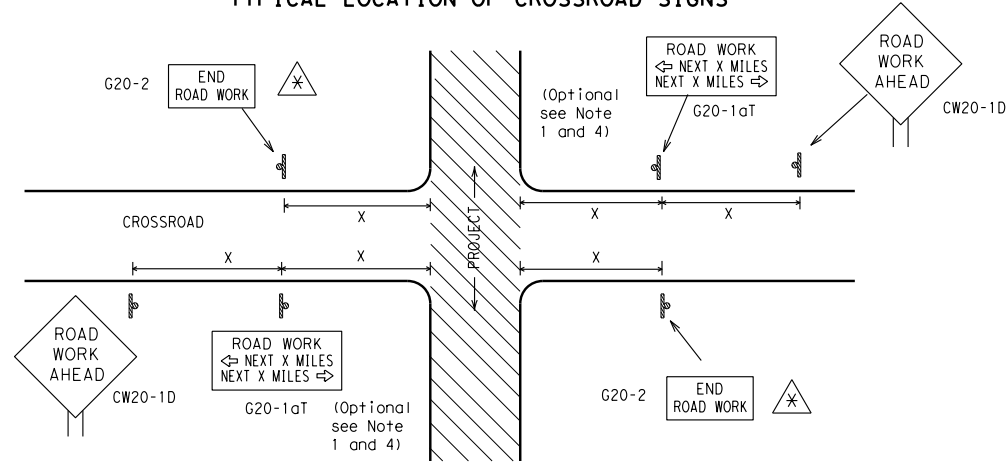
THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov	
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)	
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)	
MATERIAL PRODUCER LIST (MPL)	
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"	
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)	
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)	
TRAFFIC ENGINEERING STANDARD SHEETS	

SHEET 1 OF 12

		<i>Traffic Operations Division Standard</i>
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS		
BC (1) - 14		
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT
REVISIONS	JOB	
4-03 5-10 8-14	DIST	
9-07 7-13	COUNTY	SHEET NO.

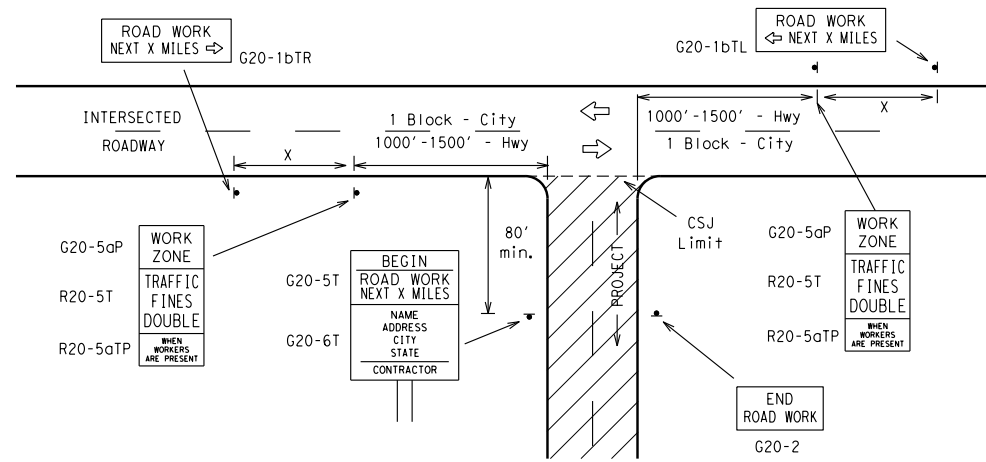
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ⊗ May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
 - The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume. This information shall be shown in the plans.
 - Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
 - The "ROAD WORK NEXT X MILES" (G20-1aT) sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
 - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
 - When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

- The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
- If construction closes the road at a T-intersection the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow (G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR) signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING^{1,5,6}

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Δ Spacing "X" Feet (Apprx.)
CW20 ⁴	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 ²
			65	700 ²
			70	800 ²
			75	900 ²
			80	1000 ²
			*	* ³

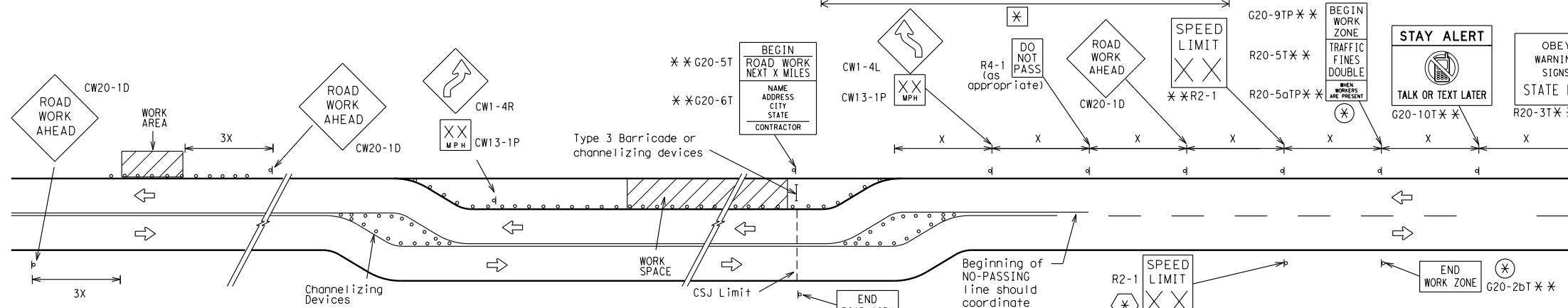
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

Δ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

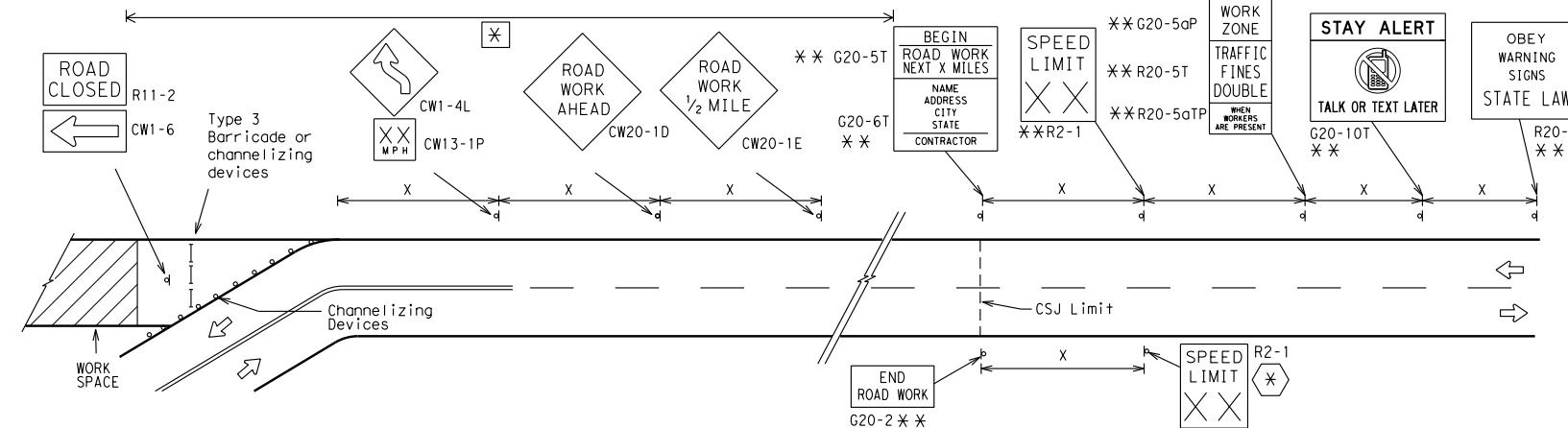
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
- Only diamond shaped warning sign sizes are indicated.
- See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

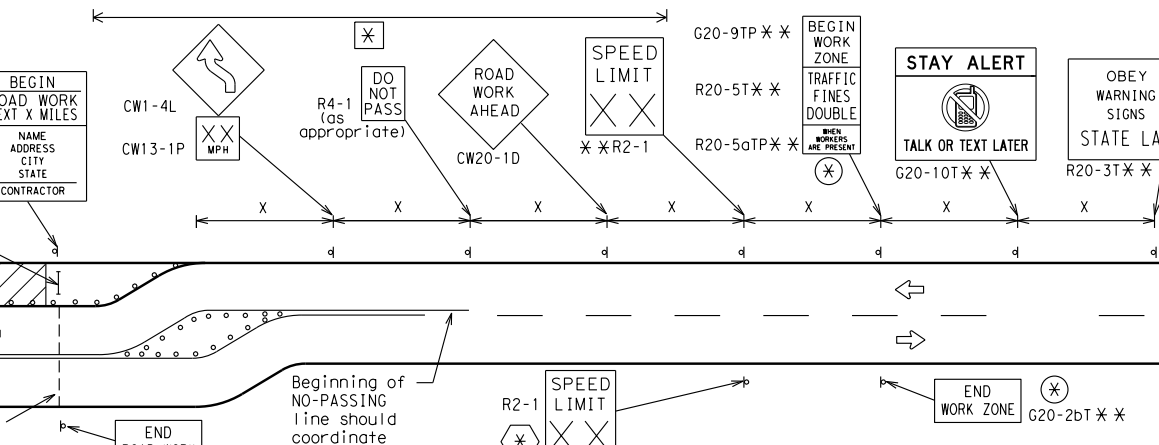


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- ⊗ The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
- ** Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.
- ⊗ Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
- ⊗ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
—	Type 3 Barricade
○ ○ ○	Channelizing Devices
⊗	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12



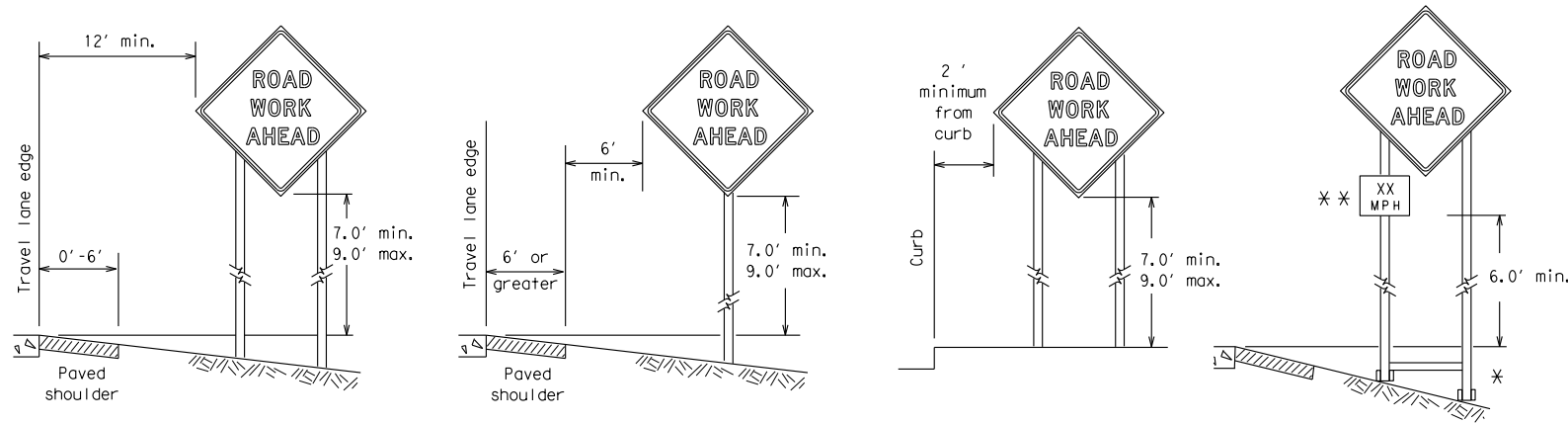
BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

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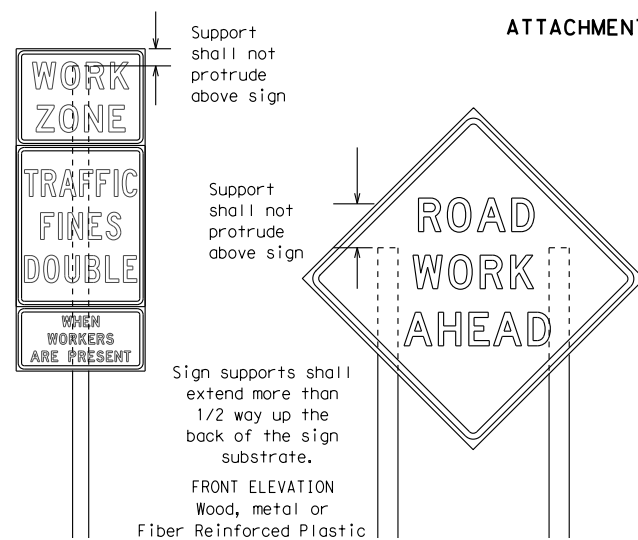
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



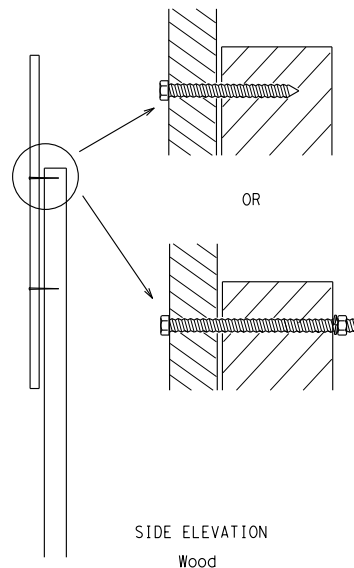
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

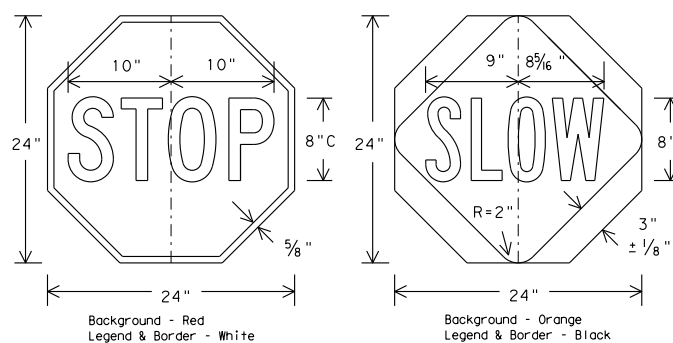


Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectORIZED.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
 2. Wooden sign posts shall be painted white.
 3. Barricades shall NOT be used as sign supports.
 4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
 5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
 6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
 7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
 8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
 9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.
- DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)**
1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
 - a. Long-term stationary - work that occupies a location more than 3 days.
 - b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
 - c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - d. Short, duration - work that occupies a location up to 1 hour.
 - e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

SHEET 4 OF 12

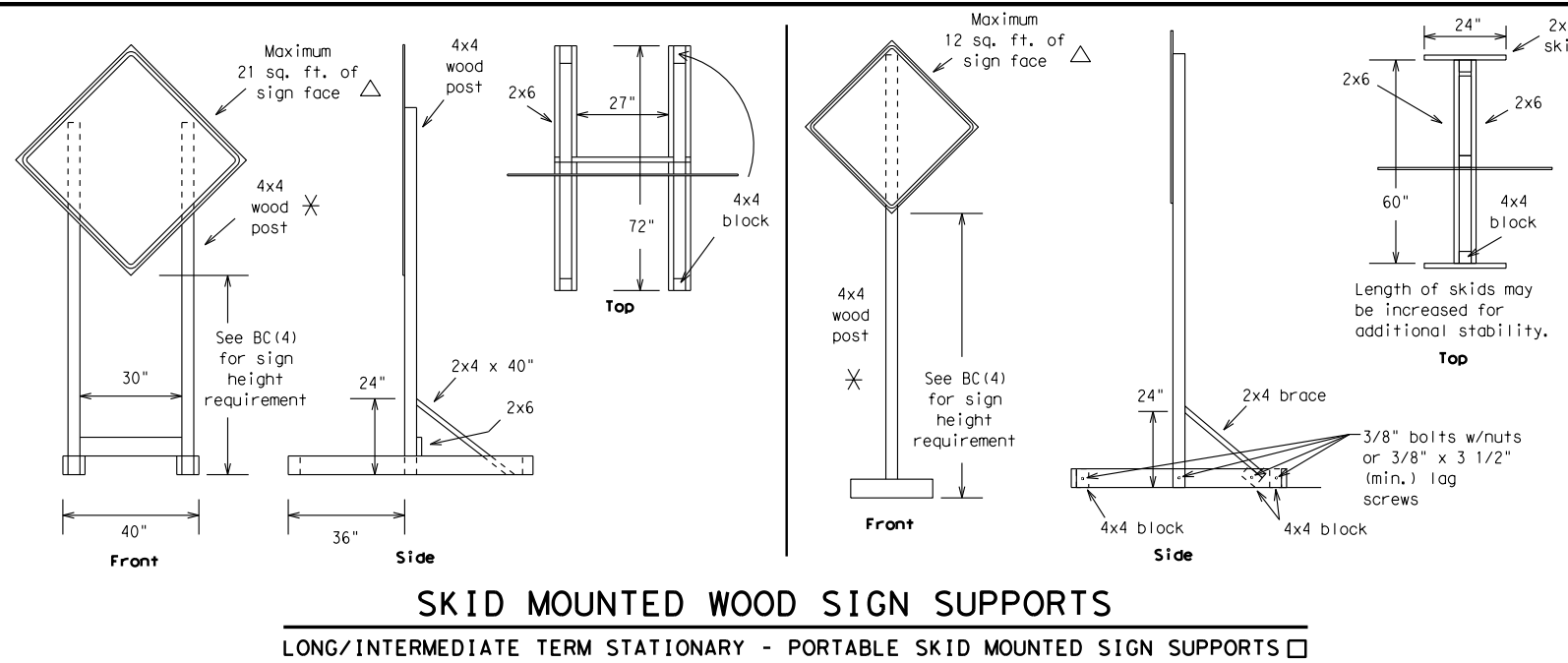


BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

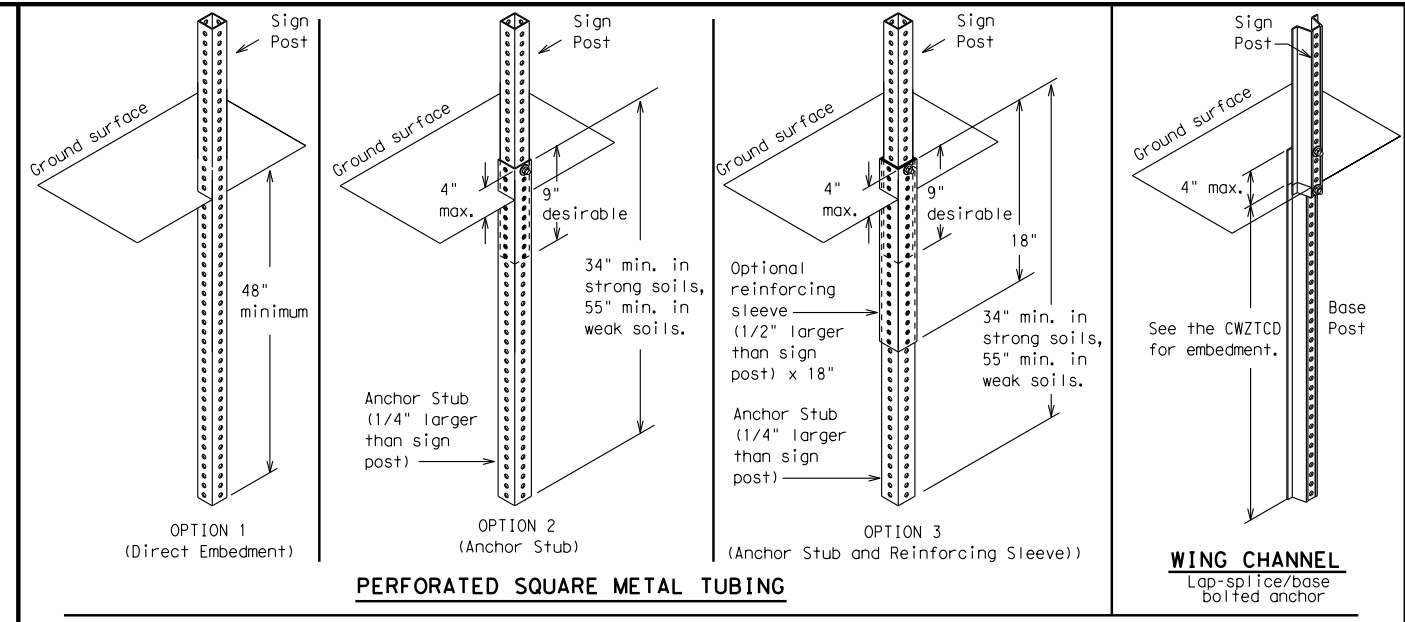
BC (4) - 14

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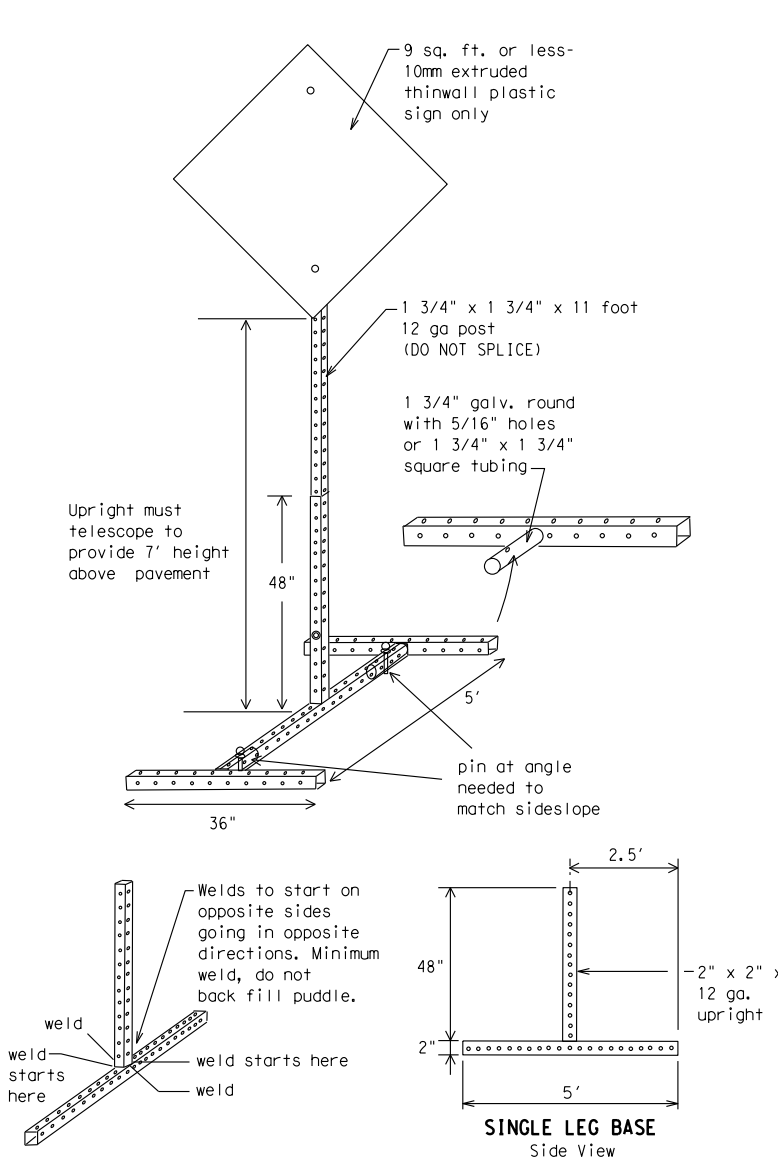
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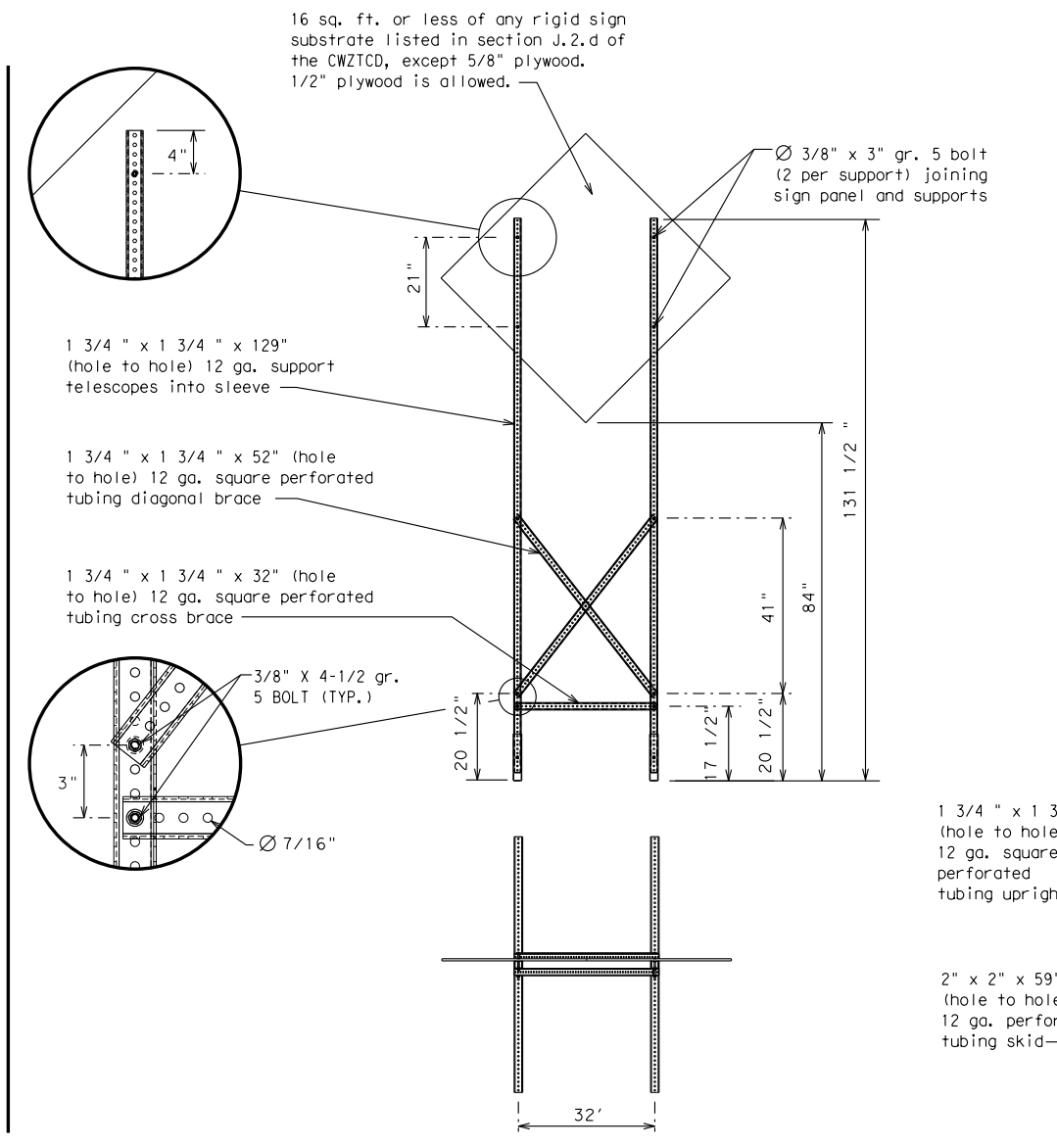
SKID MOUNTED WOOD SIGN SUPPORTS
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □



GROUND MOUNTED SIGN SUPPORTS
Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.

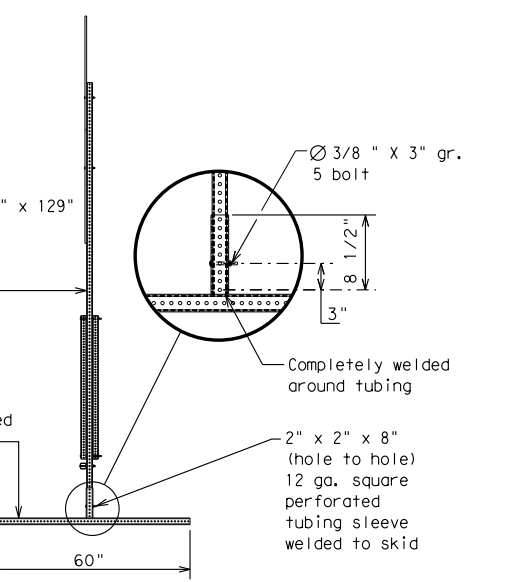


SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS



WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES



WEDGE ANCHORS
Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS
MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

- GENERAL NOTES**
- Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

- See BC(4) for definition of "Work Duration."
- ✕ Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
- △ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 14

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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- 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.
- 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.
- 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).
- 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.
- 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:

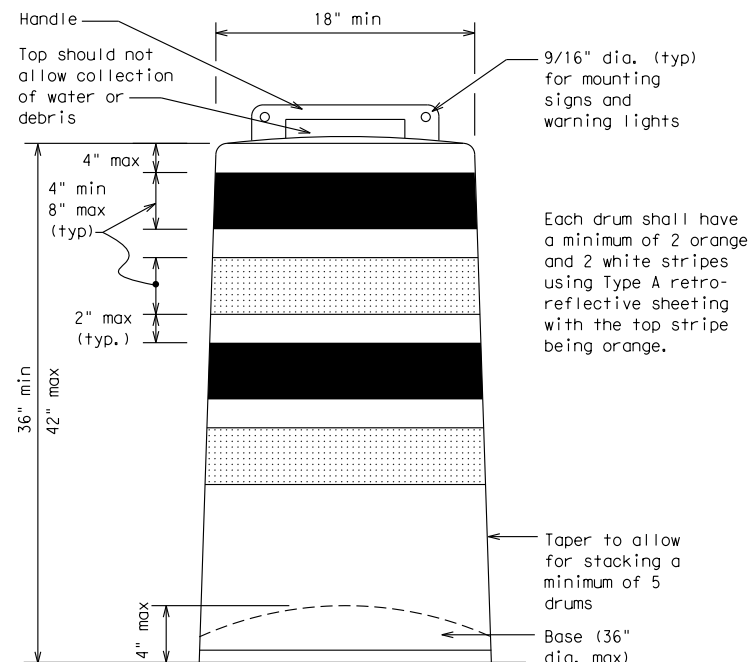
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- 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.
- 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.
- 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.
- 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.
- 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.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

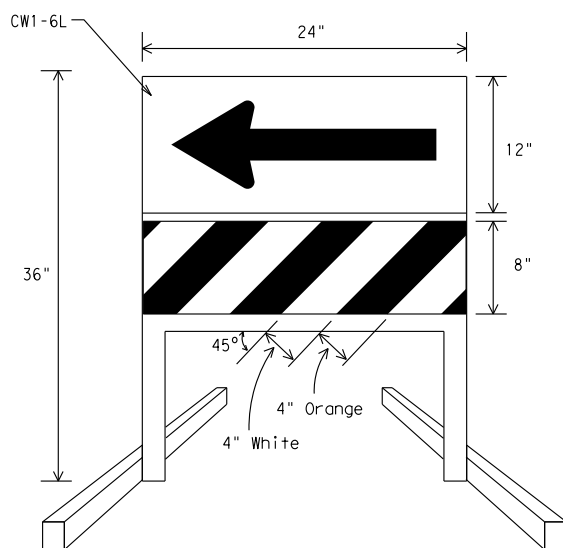
- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable 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

- 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.
- 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.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- 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.
- 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.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.



Each drum shall have a minimum of 2 orange and 2 white stripes using Type A retro-reflective sheeting with the top stripe being orange.



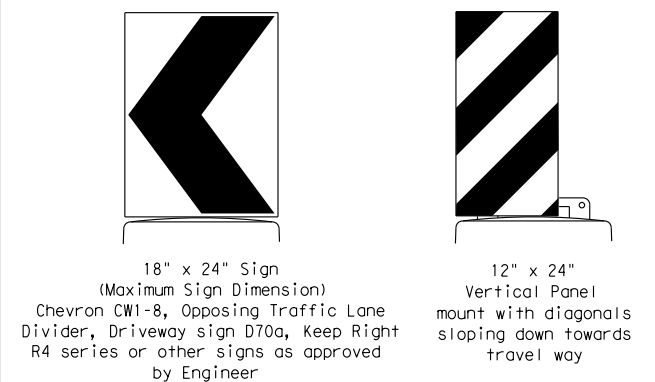
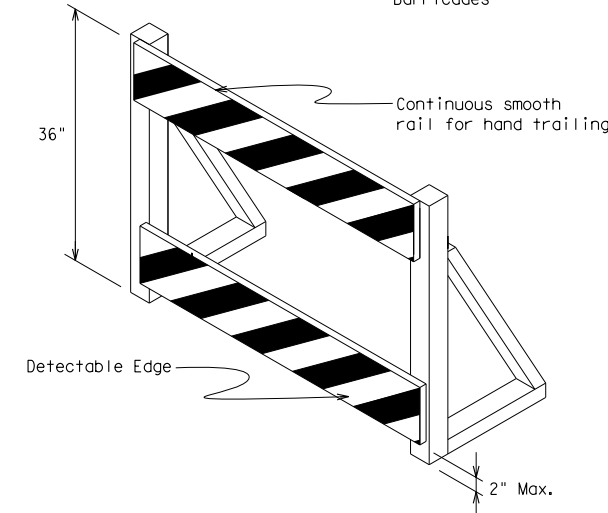
DIRECTION INDICATOR BARRICADE

- The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
- If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
- 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_{FL} or Type C_{FL} 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.
- Double arrows on the Direction Indicator Barricade will not be allowed.
- Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

DETECTABLE PEDESTRIAN BARRICADES

- 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.
- 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.
- 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.
- 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.
- Warning lights shall not be attached to detectable pedestrian barricades.
- 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.

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



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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- 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.
- 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.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- 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.
- 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



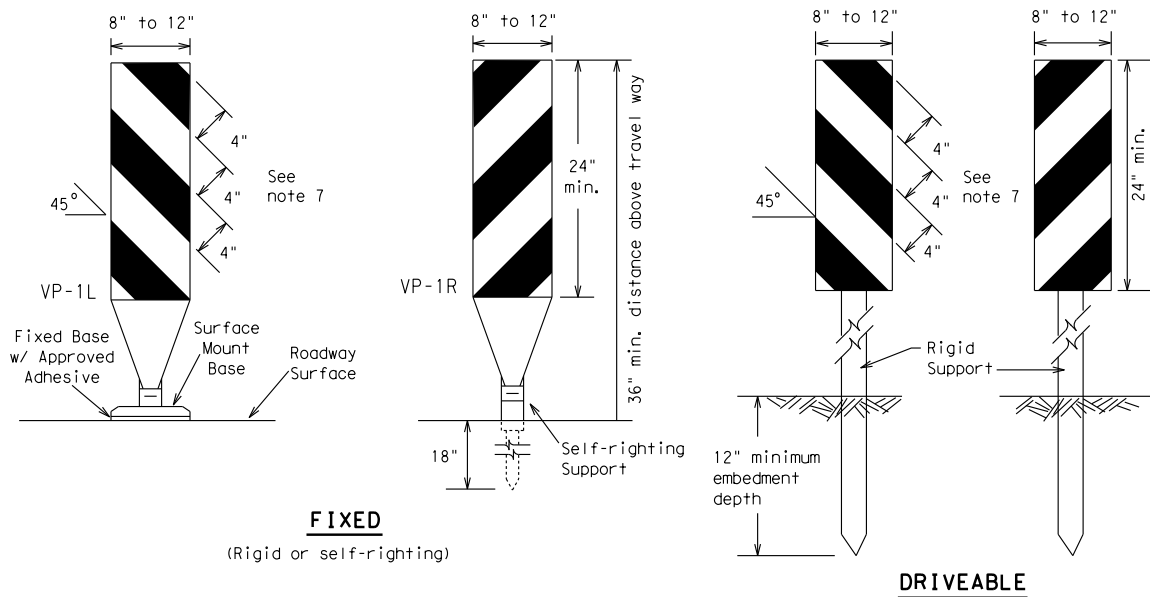
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 14

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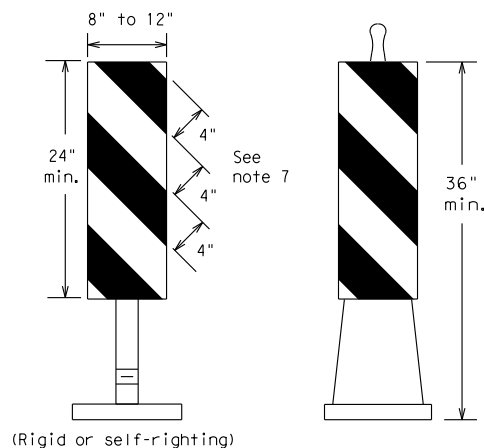
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FIXED
(Rigid or self-righting)

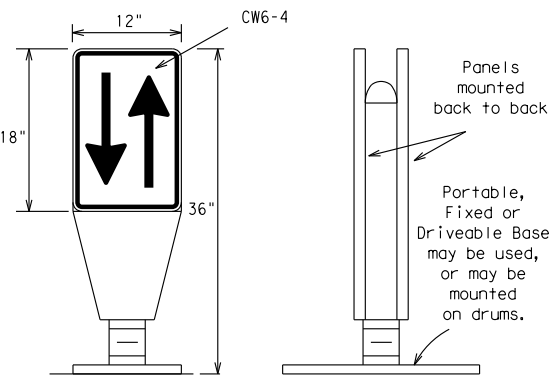
DRIVEABLE



PORTABLE

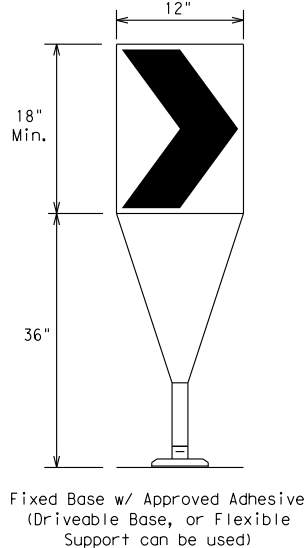
VERTICAL PANELS (VPs)

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- 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.
- 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 travel lane.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



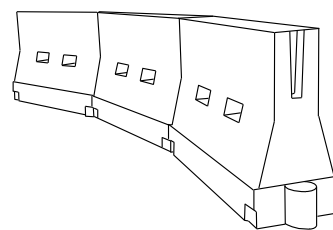
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

- 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.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- 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.
- 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.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- 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)

- 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.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- 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

- 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.
- 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.
- 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.
- 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.
- 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 for 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

- 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).
- 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.
- 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).
- 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.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- 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.
- 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 X	Formula	Minimum Desirable Taper Lengths X X			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = 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



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 14

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REVISIONS									
9-07	8-14	DIST	COUNTY		SHEET NO.				
7-13									

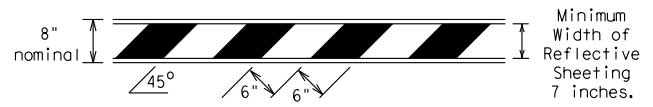
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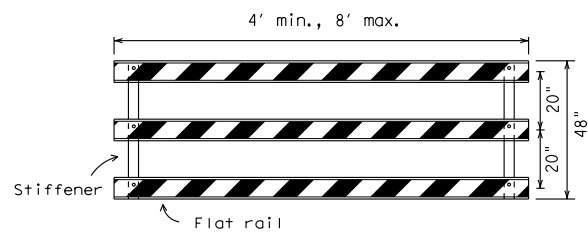
TYPE 3 BARRICADES

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.

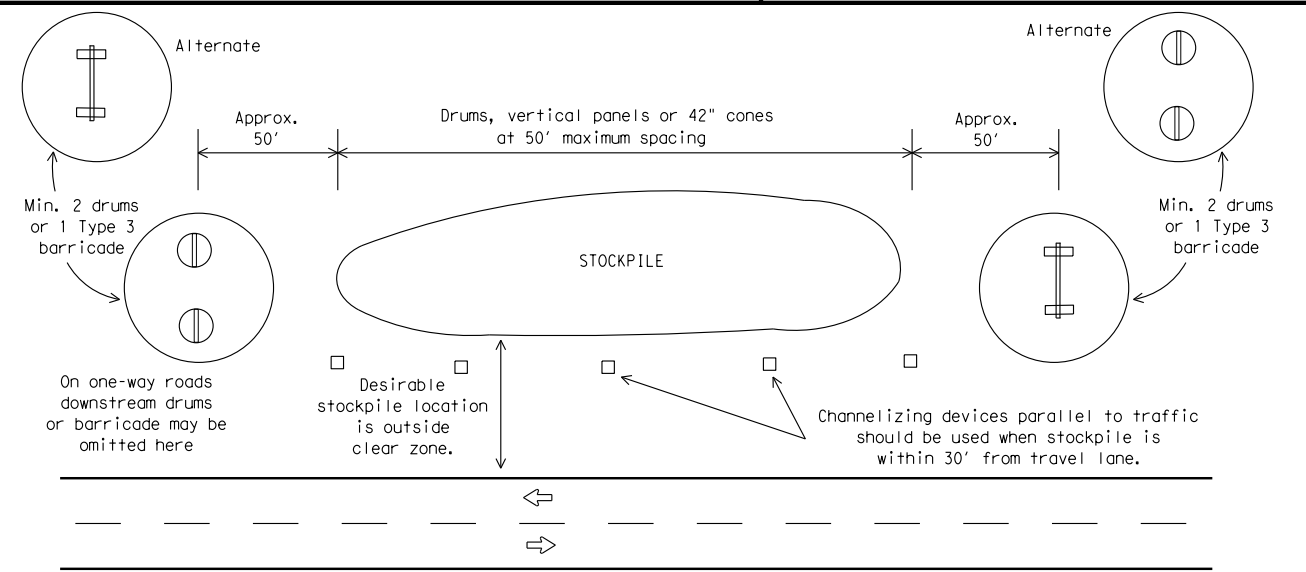


TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



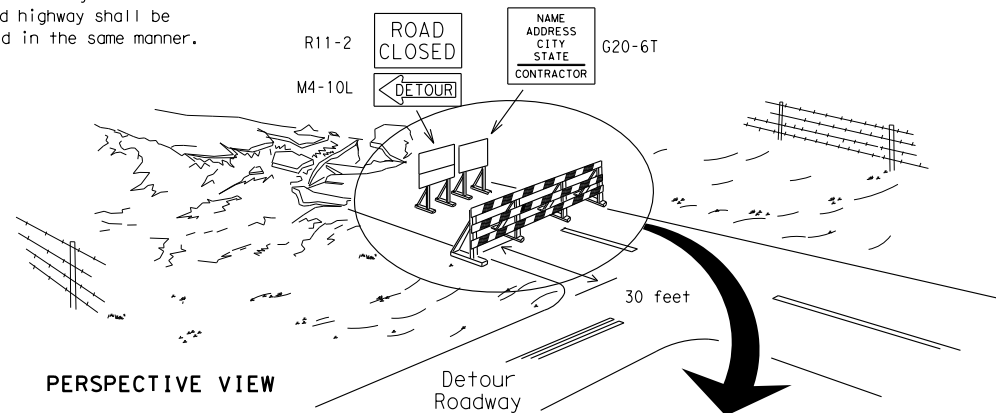
Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

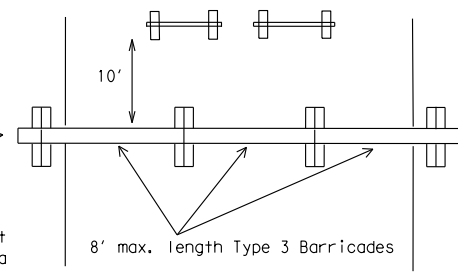
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

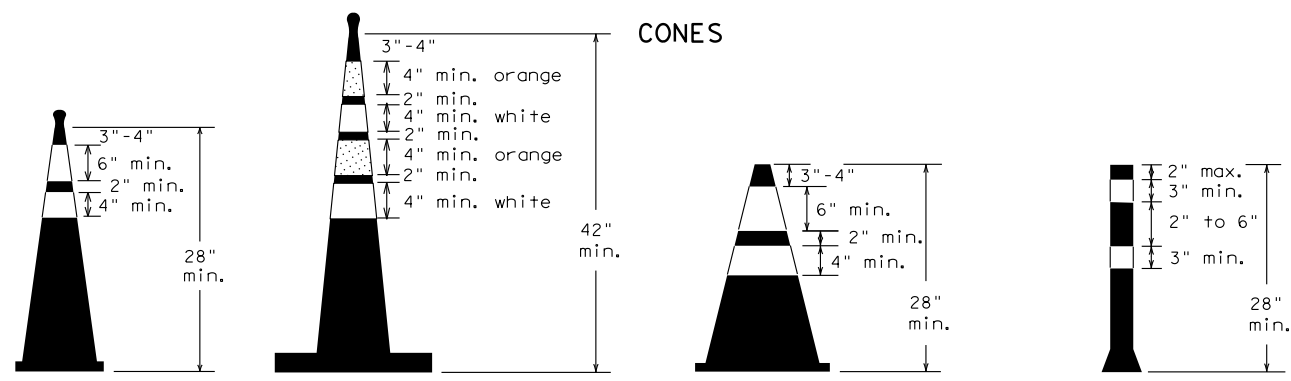
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.

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.



PLAN VIEW

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



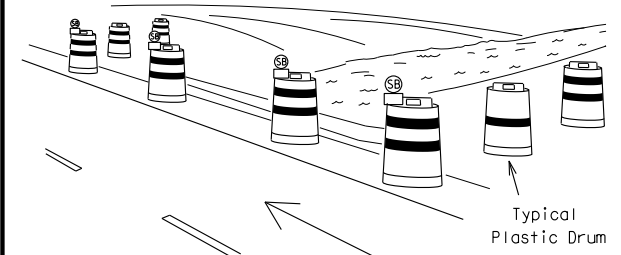
Two-Piece cones

One-Piece cones

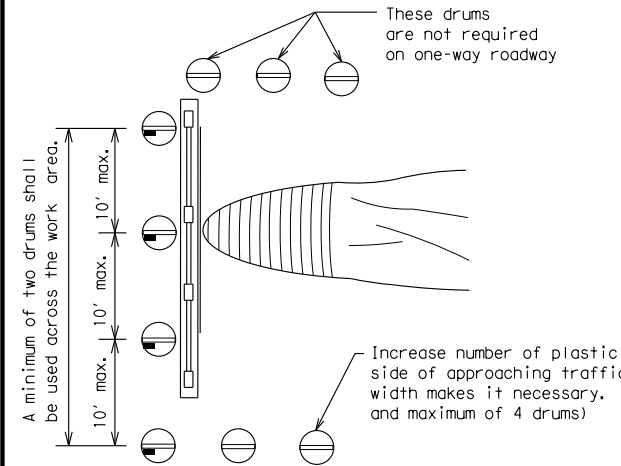
Tubular Marker

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.



PERSPECTIVE VIEW



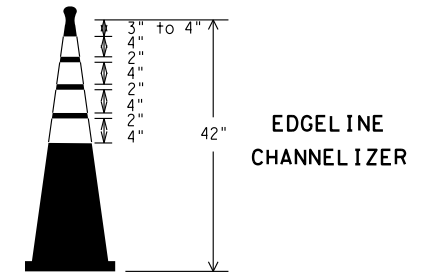
PLAN VIEW

1. Where positive redirection 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.

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

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

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



EDGE LINE CHANNELIZER

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.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 14

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
- When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

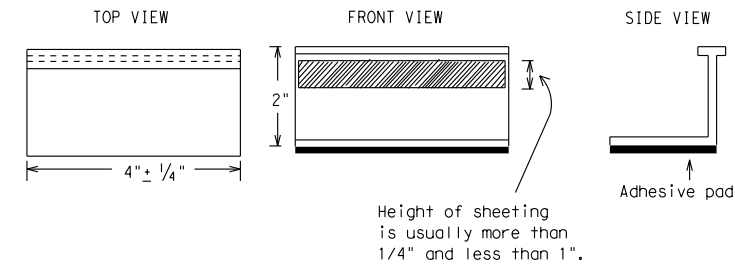
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

- Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
- The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
- Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



**STAPLES OR NAILS SHALL NOT BE USED TO SECURE
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER
TABS TO THE PAVEMENT SURFACE**

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
 - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
 YELLOW - (two amber reflective surfaces with yellow body).
 WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

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BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

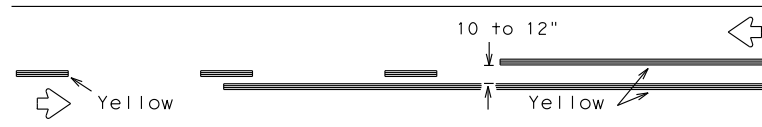
BC(11) - 14

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11-02 8-14				
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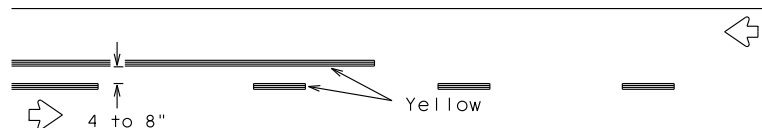
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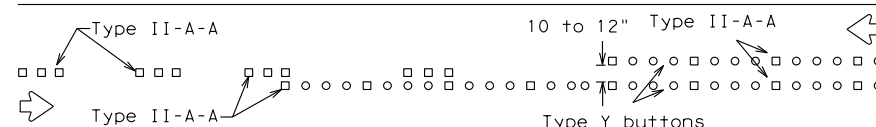
PAVEMENT MARKING PATTERNS



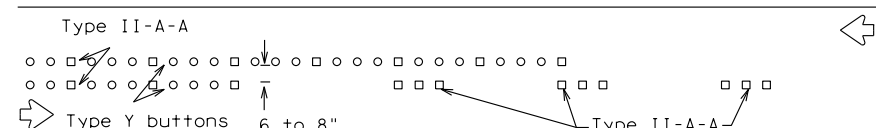
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



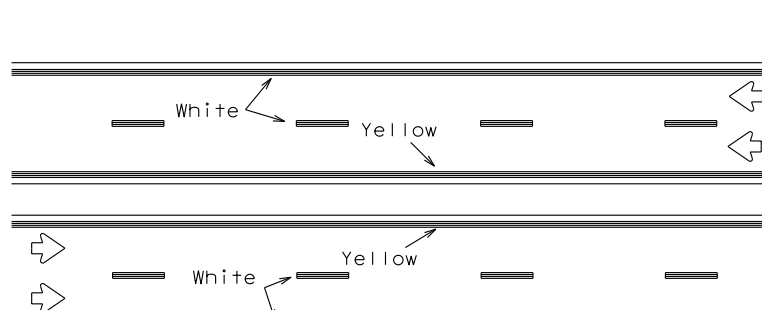
RAISED PAVEMENT MARKERS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN B

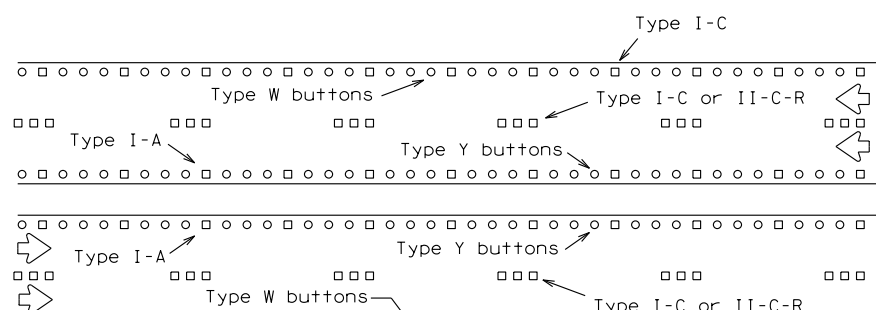
Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



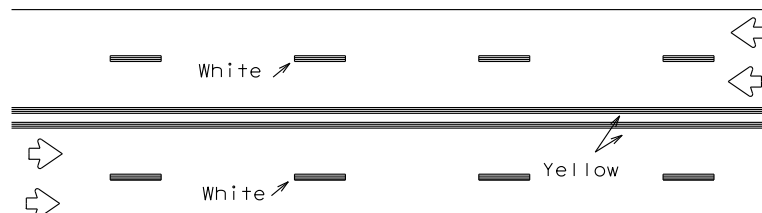
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



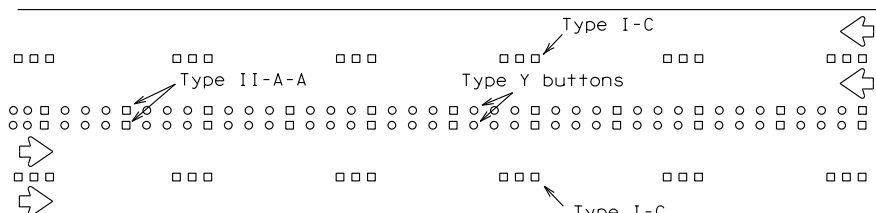
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



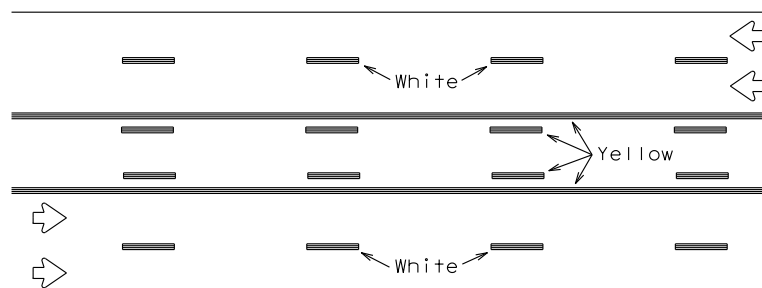
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



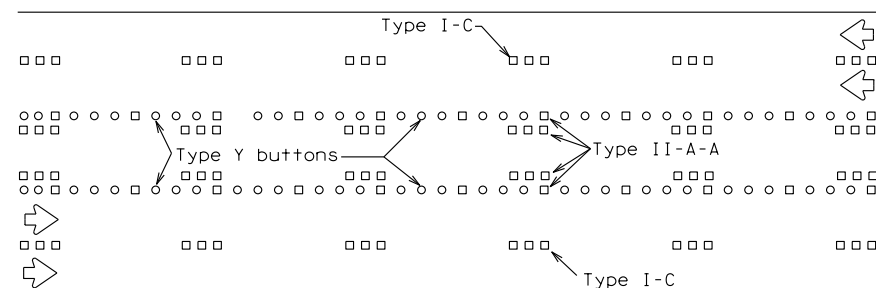
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

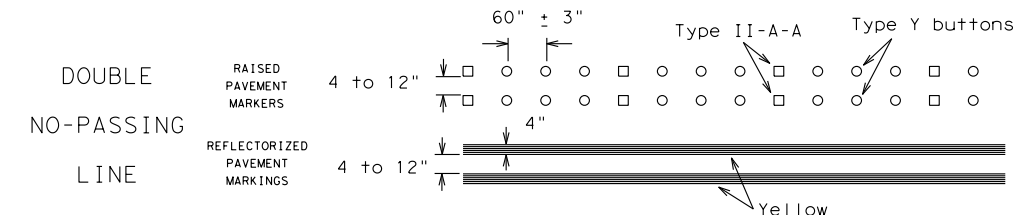
Prefabricated markings may be substituted for reflectorized pavement markings.



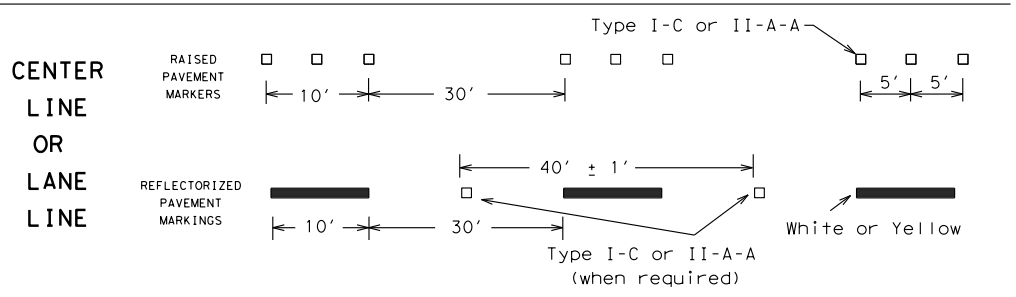
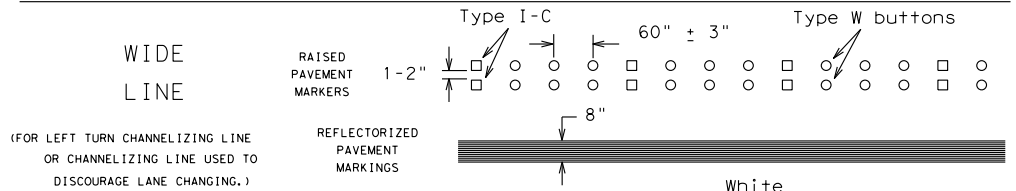
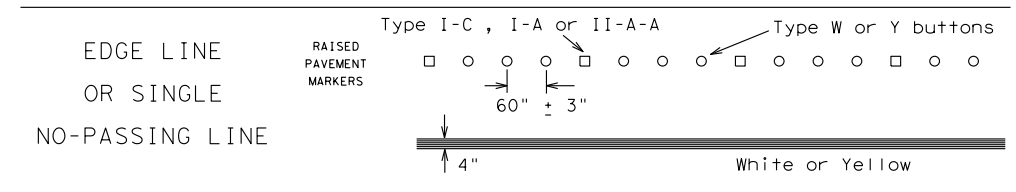
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

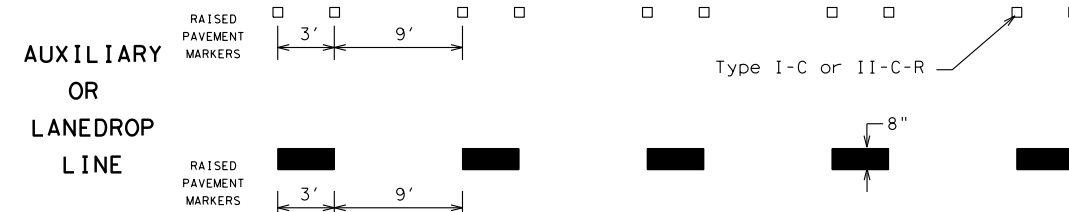
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

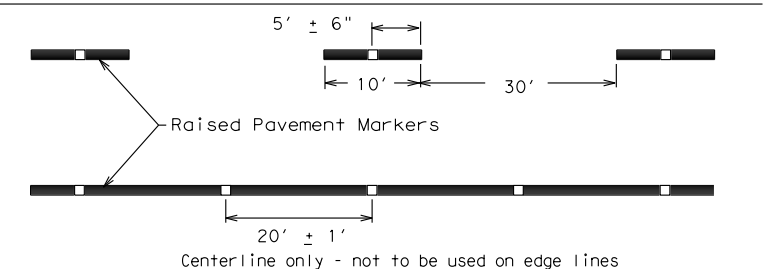


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 14

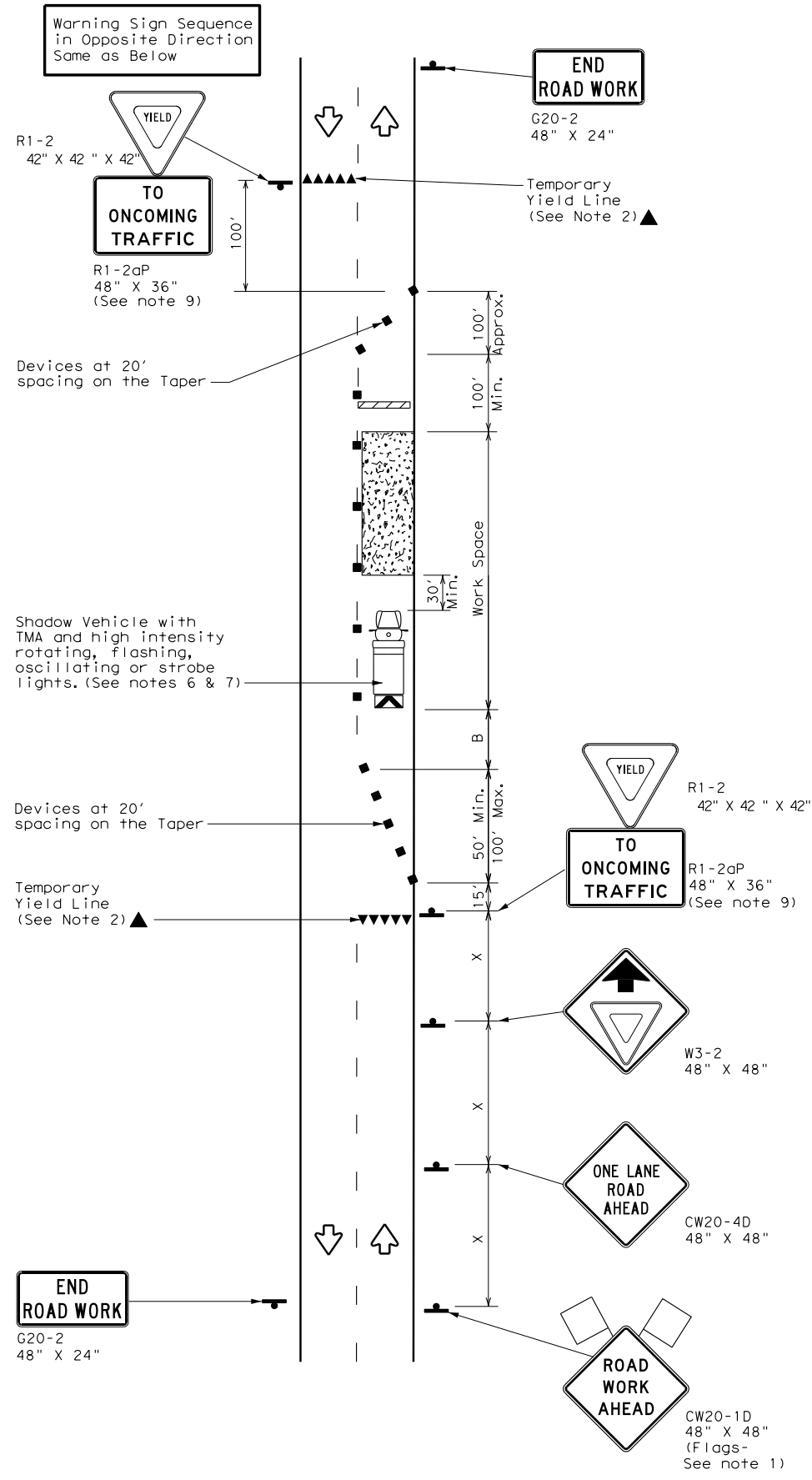
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© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				
1-97 9-07				
2-98 7-13				
11-02 8-14				
DIST	COUNTY	SHEET NO.		

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

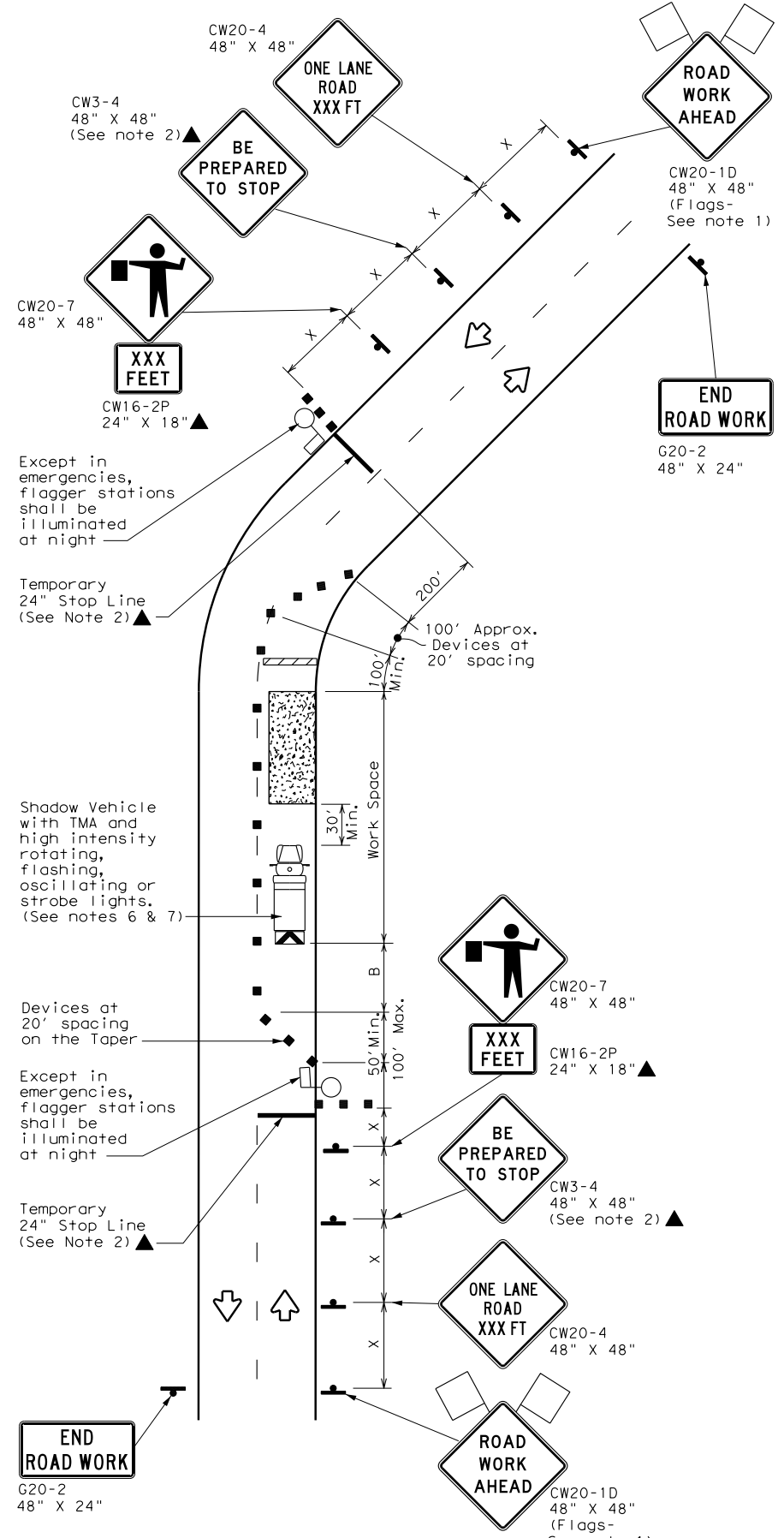
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TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

TYPICAL USAGE

	MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	✓	

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)**
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.



**TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL**

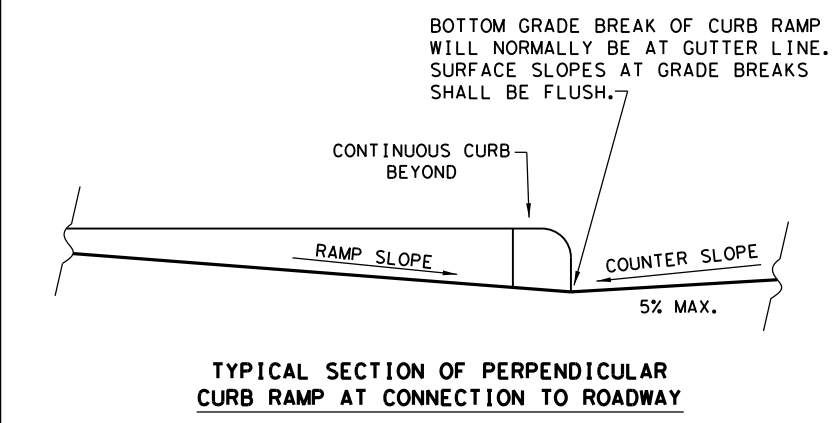
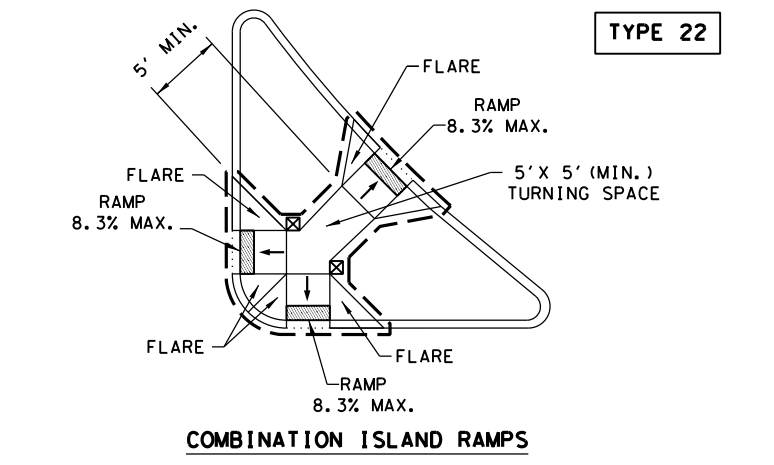
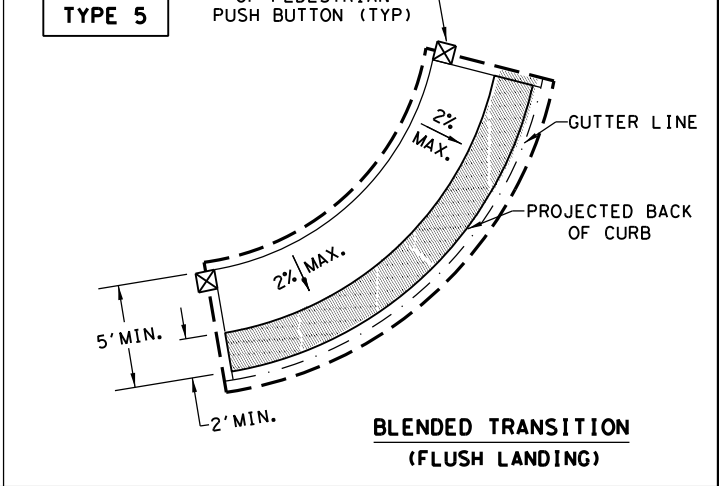
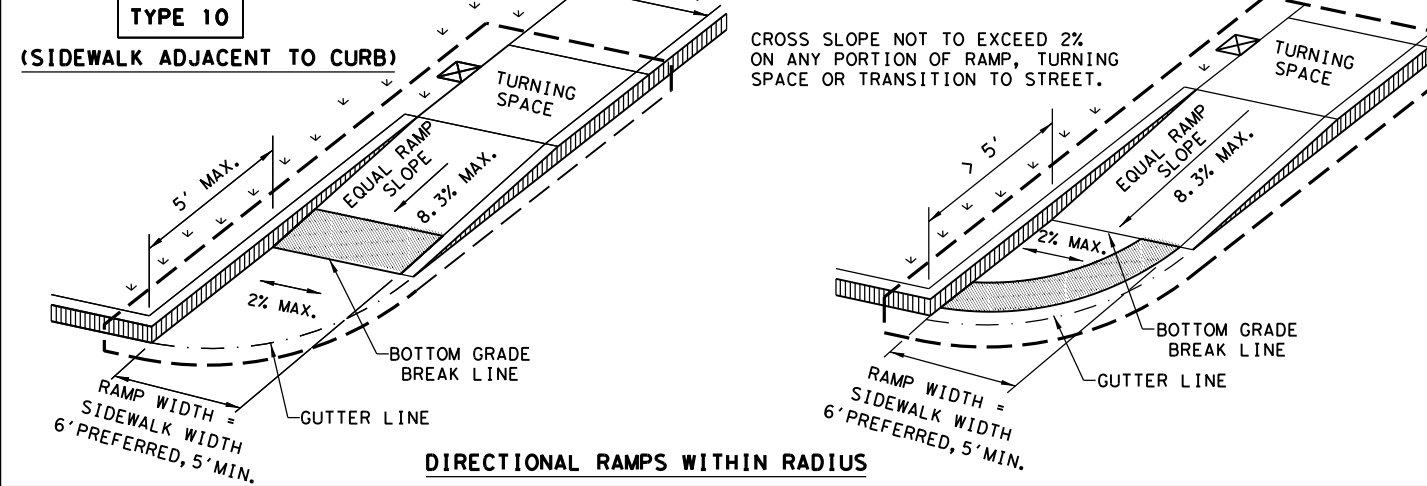
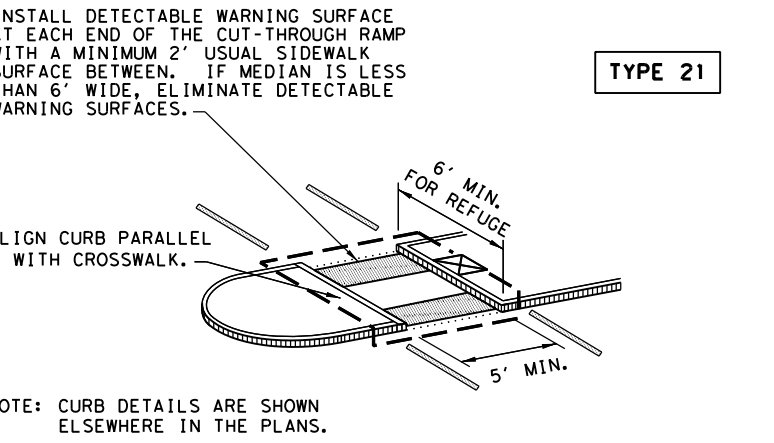
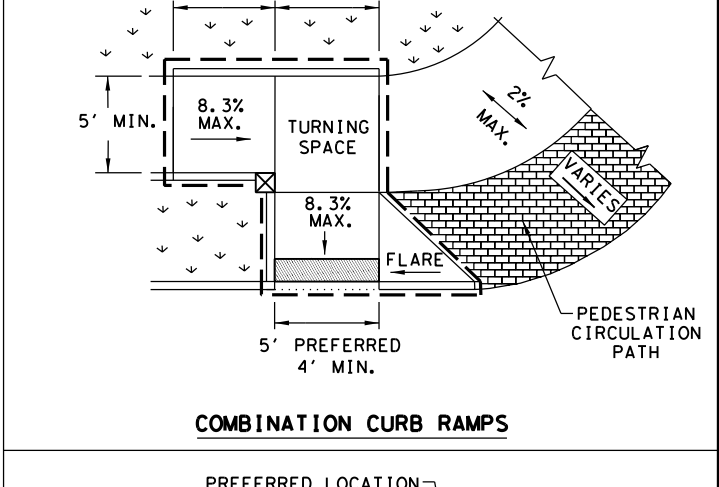
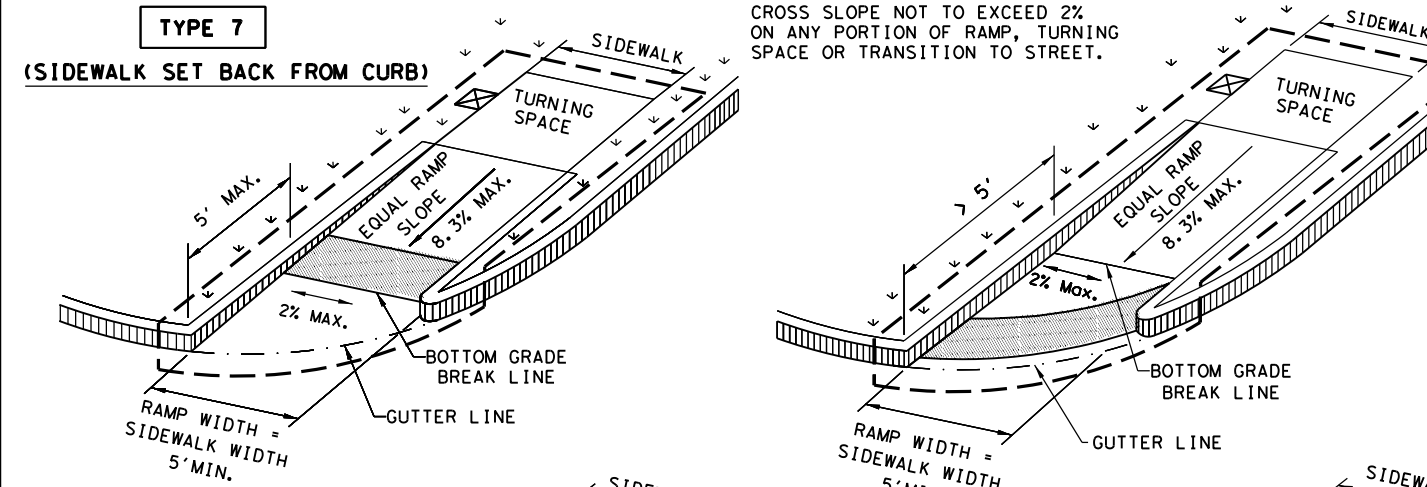
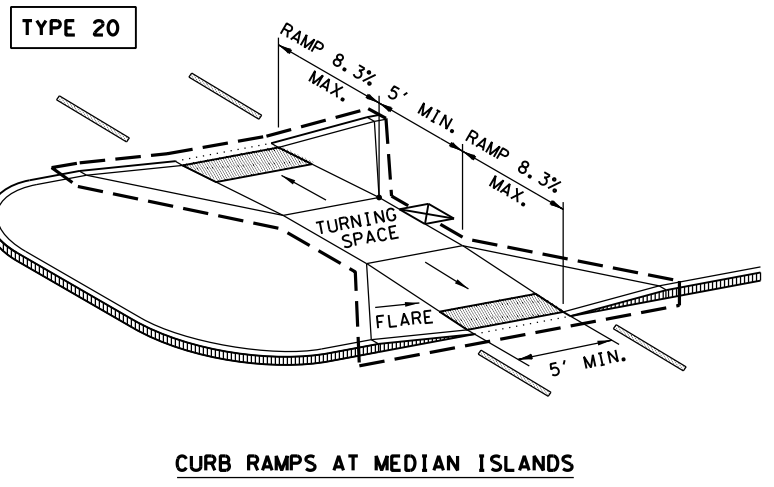
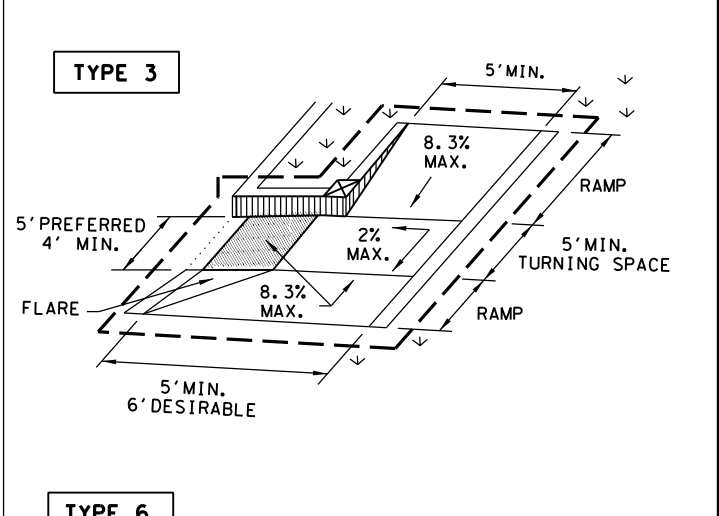
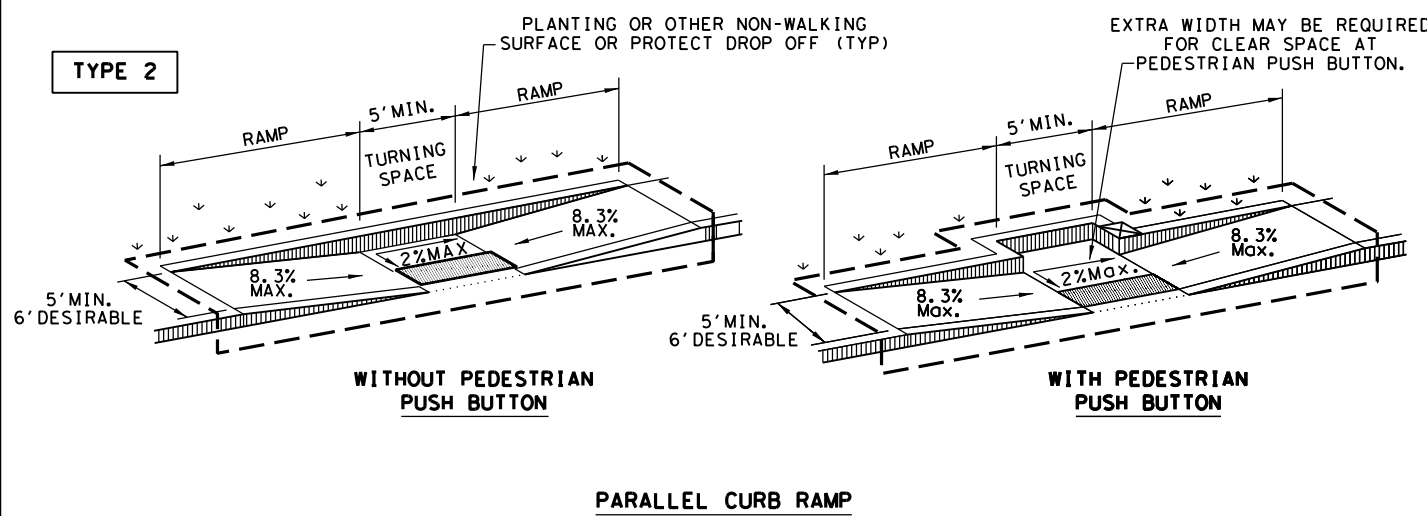
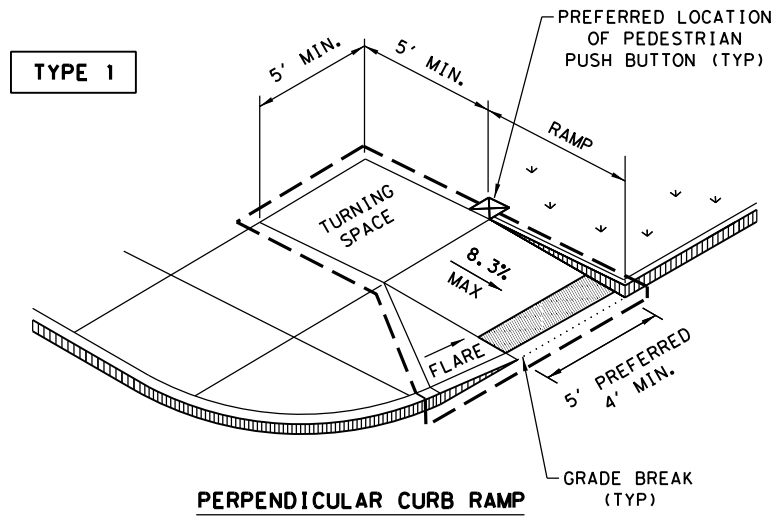
TCP (2-2) - 18

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© TxDOT	December 1985	CON:	SECT:	JOB:	HIGHWAY:
REVISIONS					
8-95	3-03				
1-97	2-12				
4-98	2-18				
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NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

Detectable Warning Surface: [Symbol]

Grade Break: [Symbol]

Ramp Limits of Payment: [Symbol]

Gutter Line: [Symbol]

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
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REVISED 08, 2005				
REVISED 06, 2012				
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GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

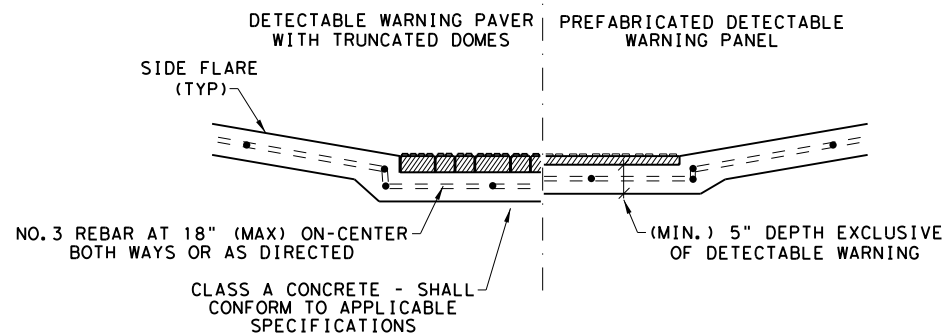
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

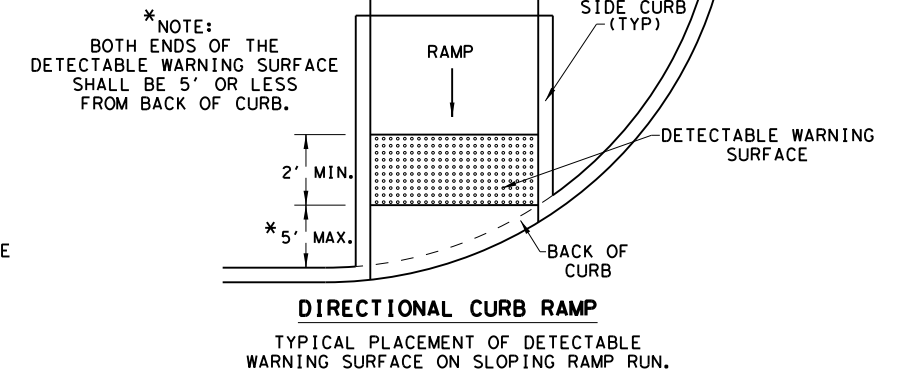
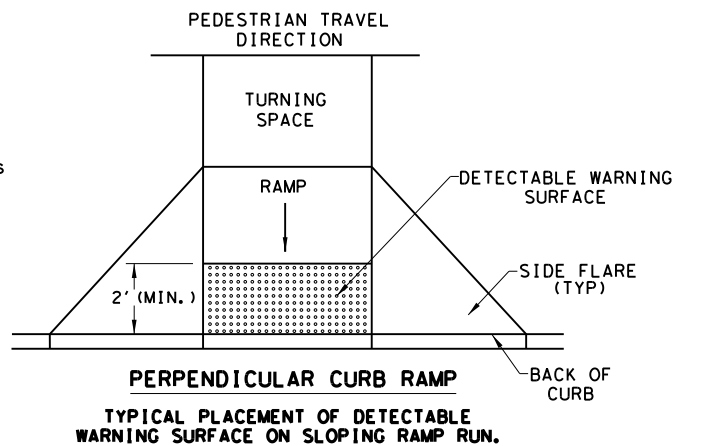
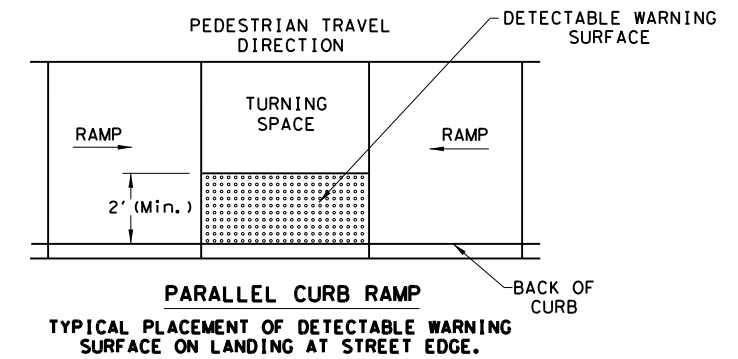
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS

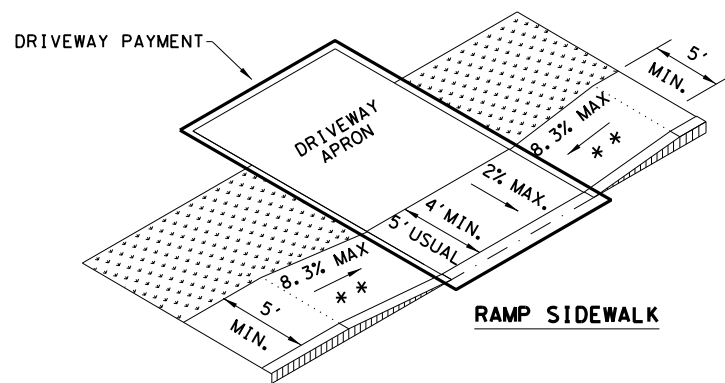
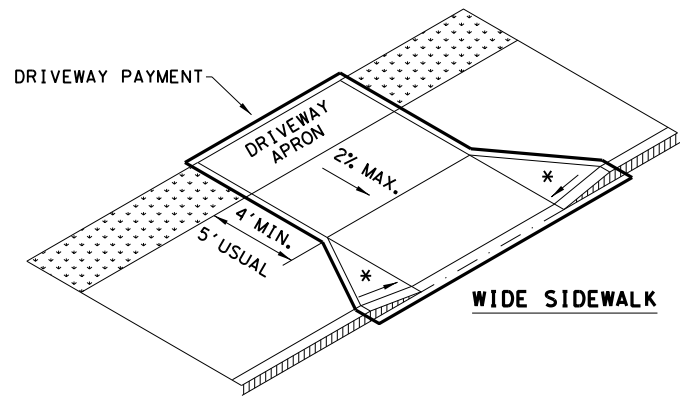
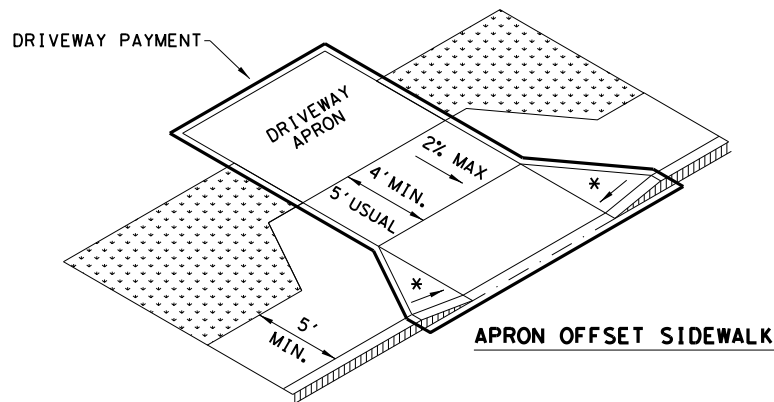
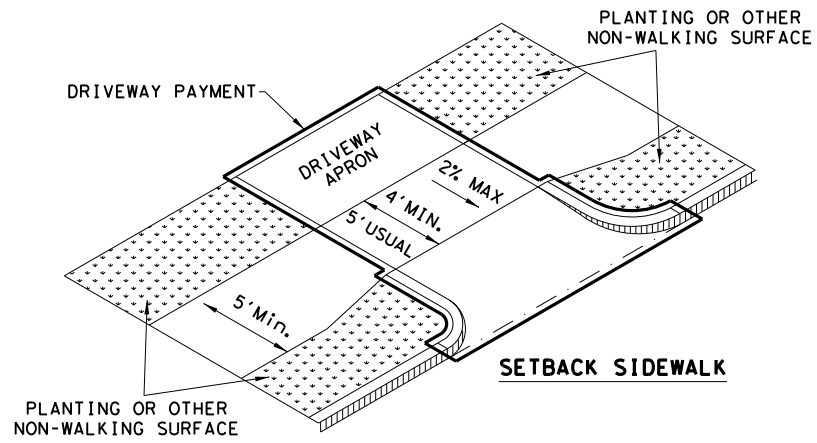


SHEET 2 OF 4

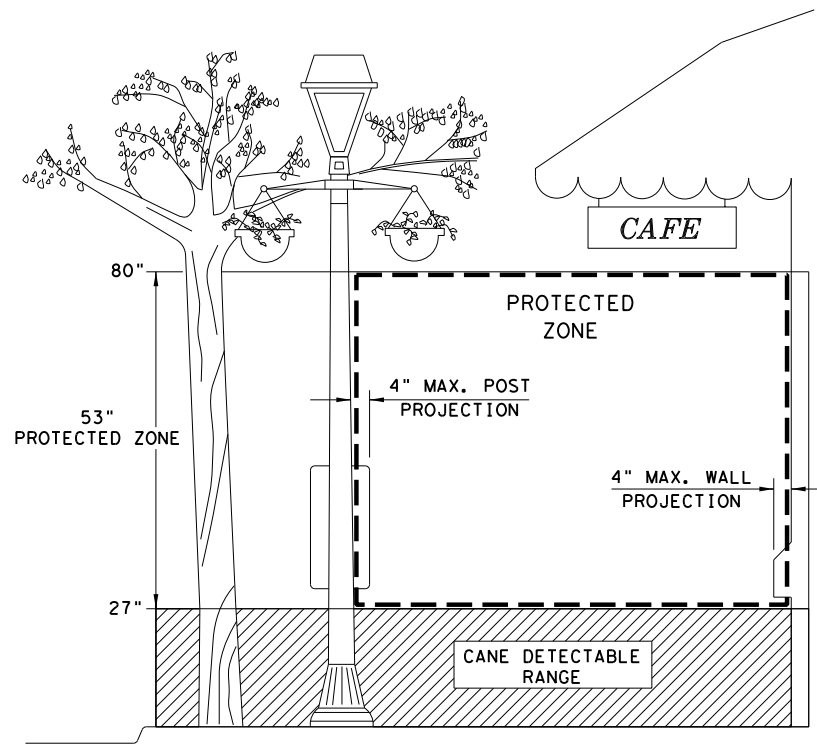
Texas Department of Transportation		Design Division Standard	
PEDESTRIAN FACILITIES CURB RAMPS			
PED-18			
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SIDEWALK TREATMENT AT DRIVEWAYS

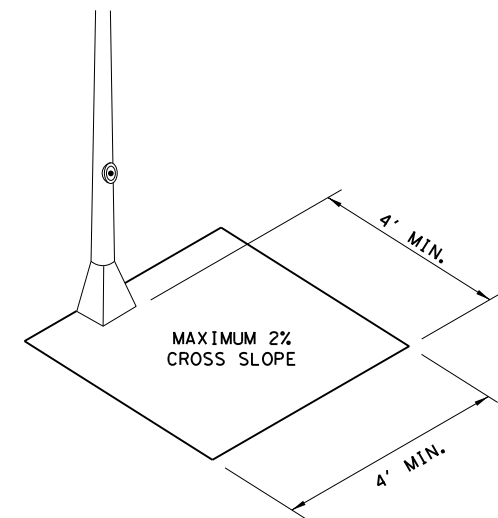


NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 * * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

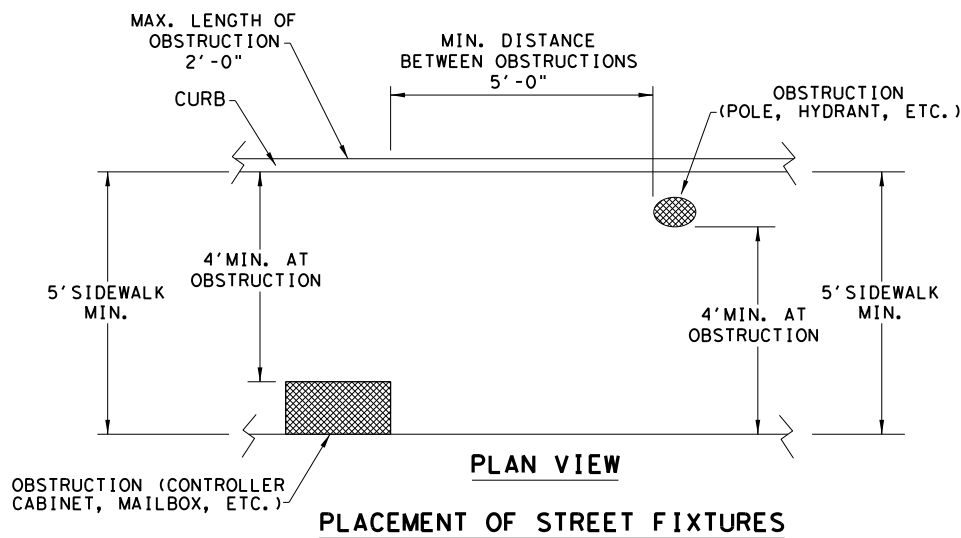


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.

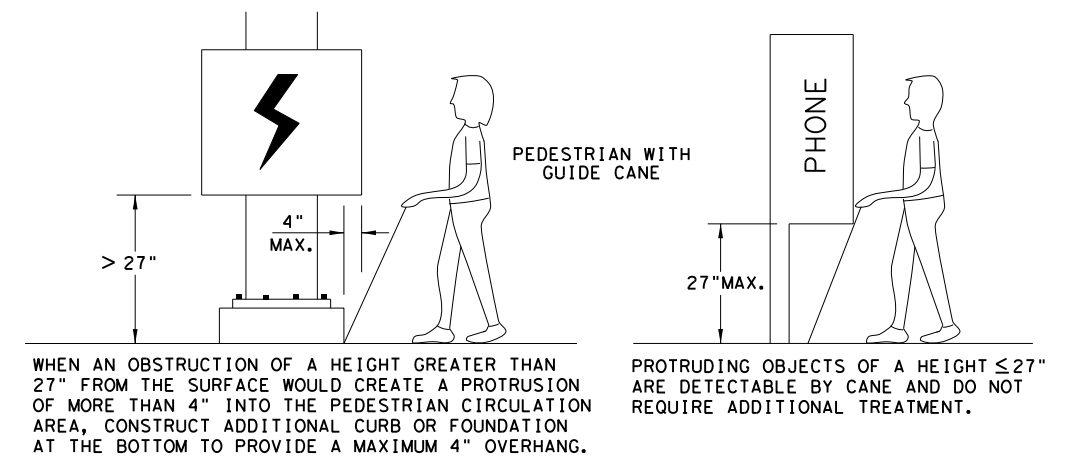


CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation
 Design Division Standard

**PEDESTRIAN FACILITIES
 CURB RAMPS**

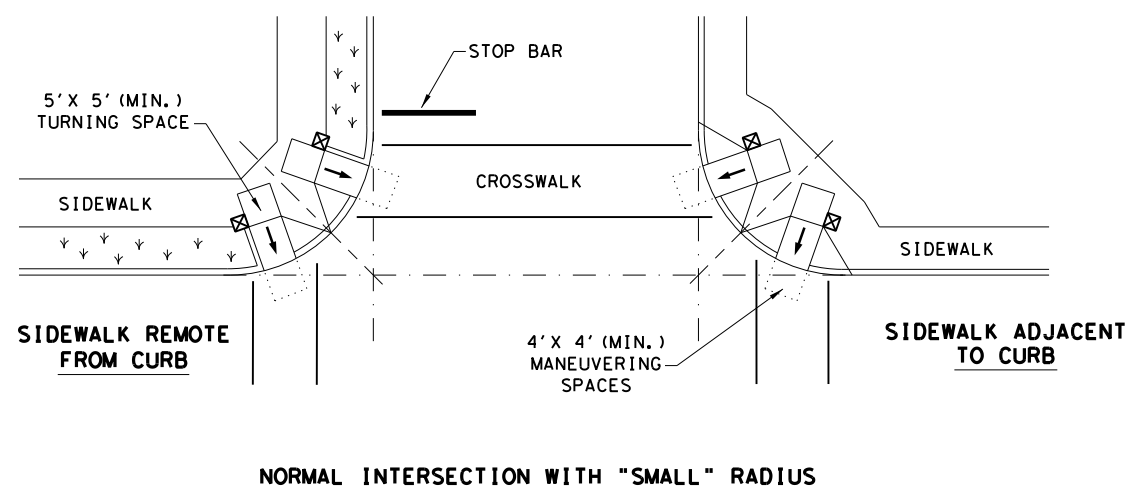
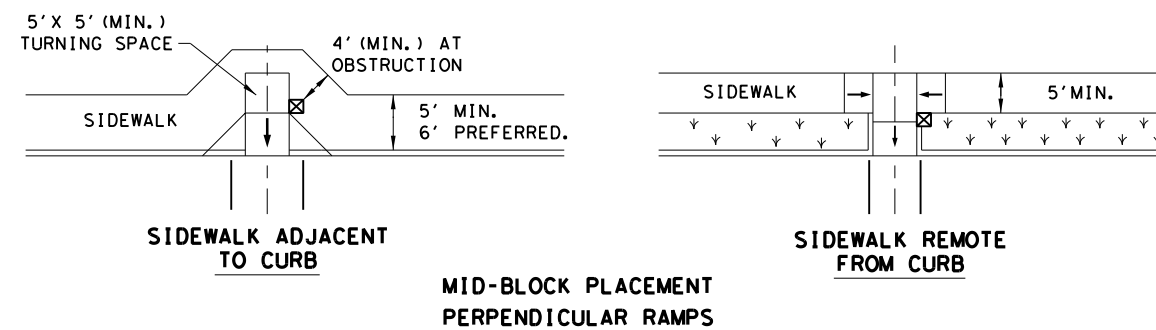
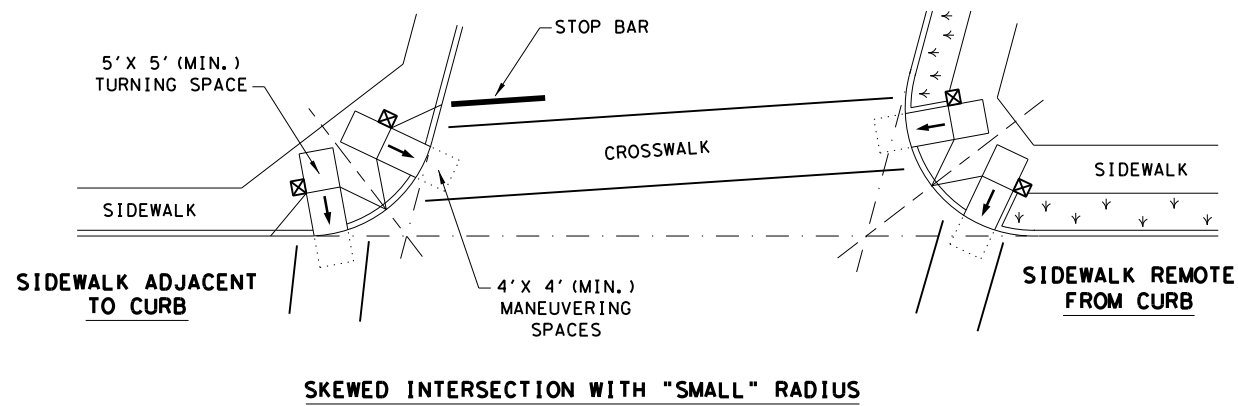
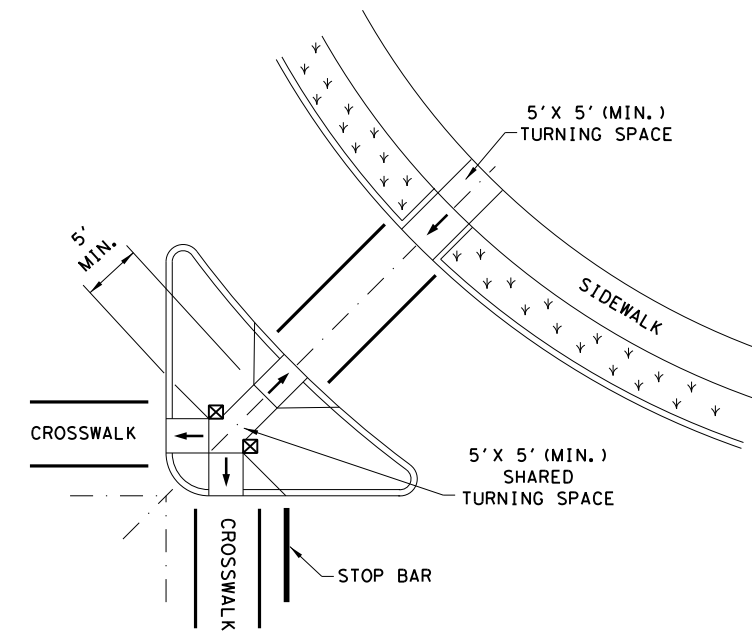
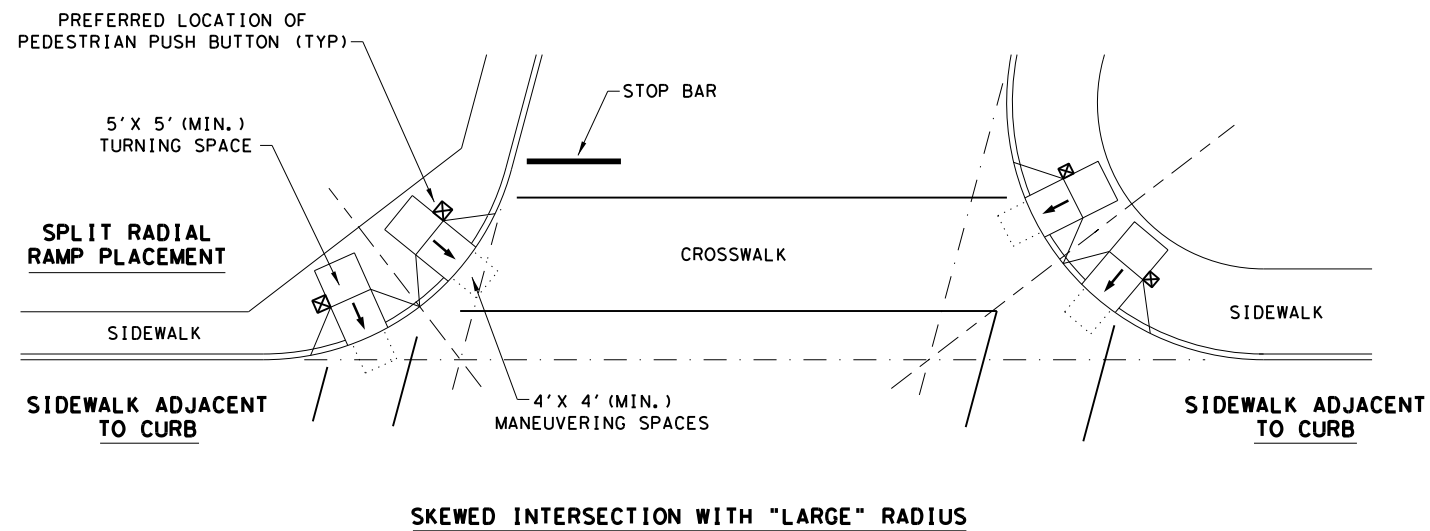
PED-18

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TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↗ ↖

SHEET 4 OF 4



**PEDESTRIAN FACILITIES
CURB RAMPS**

PED-18

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