

NOTIFICATION OF ADDENDUM

ADDENDUM NO. 1

DATED 8/02/2012

Control	<u>1728-02-037, ETC.</u>
Project	<u>STP 2012(694), ETC.</u>
Highway	<u>FM 306</u>
County	<u>COMAL</u>

Ladies/Gentlemen:

Attached please find an addendum on the above captioned project. Included in the attachment is an addendum notification which details the changes and the respective proposal pages which were added and/or changed.

Except for new bid insert pages, it is unnecessary to return any of the pages attached.

Bid insert pages must be returned with the bid proposal submitted to the Department, unless your firm is submitting a bid using a computer print out. The computer print out must be changed to reflect the new bid item information.

Contractors and material suppliers, etc. who have previously been furnished informational proposals are not being furnished a copy of the addendum. If you have a subcontractor on the above project, please advise them of this addendum. Acknowledgment of this addendum is not requested if your company has been issued a proposal stamped "This Proposal Issued for Informational Purposes."

You are required to acknowledge receipt of this addendum on the Addendum Acknowledgement form contained in your bid proposal by placing a mark in the box next to the respective addendum.

Failure to Acknowledge receipt of this addendum in your bid proposal will result in your bid not being read.

SUBJECT: PLANS AND PROPOSAL ADDENDUMS
PROJECT: STP 2012(694) CONTROL: 1728-02-037
COUNTY: COMAL
LETTING: 08/08/2012
REFERENCE NO: 0801

PROPOSAL ADDENDUMS

- _ PROPOSAL COVER
X BID INSERTS (SH. NO.: 3,5,20 OF 22)
_ GENERAL NOTES (SH. NO.:)
X SPEC LIST (SH. NO.: 4 OF 4)
_ SPECIAL PROVISIONS:)
_ ADDED:

DELETED:

- X SPECIAL SPECIFICATIONS:
ADDED: 2046

DELETED:

- X OTHER: PLAN SHEETS

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

BID INSERTS-

QUANTITY FOR THE FOLLOWING BID ITEMS WERE REVISED:
420-2013, 423-2007, 464-2003, 464-2005
THE FOLLOWING BID ITEMS WERE ADDED TO THE ESTIMATE:
464-2007, 2046-2003
BID INSERT SHEETS 3,5,20 OF 22 CHANGED AS A RESULT

SPEC LIST-

ADDED SPECIAL SPEC 2046
SPEC LIST SHEET 4 OF 4 CHANGED AS A RESULT

PLAN SHEETS-

SHEET 3: ADDED WPAP SHEETS TO THE INDEX
SHEETS 4-5: UPDATED PROJECT LAYOUTS TO SHOW STORM WATER TREATMENT UNITS
SHEETS 17,17A-17D: REVISED E&Q SHEETS TO REFLECT QUANTITY CHANGES ABOVE
SHEET 36: UPDATED QUANTITIES AND ADDED ITEM FOR 30" RCP
SHEET 36A: UPDATED TO ADD ITEM FOR CLASS C CONC (MISC) & RET. WALL
DESCRIPTION OF ABOVE CHANGES (CONTINUED)
(INCLUDING PLANS SHEET CHANGES)

SHEET 145: UPDATED TURNAROUND 1L DATA
SHEETS 150,152: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEET 289A: UPDATED TO SHOW CHANGE DUE TO STORM WATER TREATMENT UNITS
SHEETS 290-291: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEET 299: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEETS 310-314,316,318: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEET 332A: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEET 332C: UPDATED TO ADD ITEM FOR CLASS C CONC (MISC)
SHEET 374: REVISED BEARING SEAT ELEVATIONS
SHEET 389: CORRECTED SLOPE ON RIGHT BRIDGE SPANS 1-3 TO MATCH BRG LAYOUT
SHEET 390: ADDED THICKENED SLAB ENDS AT BENT NO. 2
SHEET 391: CORRECTED DIMENSION LINE ON TYPICAL TRANSVERSE SECTION
SHEET 392: ADDED THICKENED SLAB ENDS AT BENT NO. 2
SHEET 393: CORRECTED DIMENSION LINE AND CALL-OUT
SHEET 398: CORRECTED RIGHT BRIDGE SPAN 4 TO SHOW 9 GIRDERS
SHEET 402: REVISED TYPICAL TRANSVERSE SECTION
SHEET 545: CORRECTIONS IN SECTIONS II, VI, AND VII
SHEETS 547,549: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEETS 560A-560N: ADDED WPAP LAYOUT SHEETS
SHEETS 560O-560W: ADDED STORMWATER TREATMENT SYSTEM DETAIL SHEETS
SHEETS 565,567: UPDATED TO SHOW STORM WATER TREATMENT UNITS
SHEETS 583,597,598: REVISED TO MATCH CHANGES ON SHEETS 368 & 371

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	100	2002	002	PREPARING ROW DOLLARS and CENTS	STA	108.160	1
	104	2009		REMOVING CONC (RIPRAP) DOLLARS and CENTS	SY	108.000	2
	104	2011		REMOVING CONC (MEDIANS) DOLLARS and CENTS	SY	548.000	3
	104	2015		REMOVING CONC (SIDEWALKS) DOLLARS and CENTS	SY	648.000	4
	104	2017		REMOVING CONC (DRIVEWAYS) DOLLARS and CENTS	SY	1,394.000	5
	104	2021		REMOVING CONC (CURB) DOLLARS and CENTS	LF	1,307.000	6
	106	2002		OBLITERATING ABANDONED ROAD DOLLARS and CENTS	SY	16,869.000	7
	110	2001		EXCAVATION (ROADWAY) DOLLARS and CENTS	CY	38,058.000	8
	132	2003		EMBANKMENT (FINAL)(ORD COMP)(TY B) DOLLARS and CENTS	CY	127,895.000	9
	161	2002	006	COMPOST MANUF TOPSOIL (BOS) (4") DOLLARS and CENTS	SY	80,929.000	10
	162	2002		BLOCK SODDING DOLLARS and CENTS	SY	80,929.000	11

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	164	2051	002	DRILL SEED (TEMP)(WARM OR COOL) DOLLARS and CENTS	SY	79,273.000	12
	168	2001		VEGETATIVE WATERING DOLLARS and CENTS	MG	1,294.710	13
	169	2001	002	SOIL RETENTION BLANKETS (CL 1) (TY A) DOLLARS and CENTS	SY	79,273.000	14
	316	2705	016	ASPH (TIER I) DOLLARS and CENTS	GAL	34,184.000	15
	316	2717	016	AGGR (TIER I) DOLLARS and CENTS	CY	1,036.000	16
	400	2005		CEM STABIL BKFL DOLLARS and CENTS	CY	366.000	17
	400	2006		CUT & RESTORING PAV DOLLARS and CENTS	SY	948.000	18
	402	2001		TRENCH EXCAVATION PROTECTION DOLLARS and CENTS	LF	12.000	19
	403	2001		TEMPORARY SPL SHORING DOLLARS and CENTS	SF	120.000	20
	416	2004	001	DRILL SHAFT (36 IN) DOLLARS and CENTS	LF	4,961.000	21
	416	2056	001	DRILL SHAFT (TRF SIG POLE)(36 IN)(ROCK) DOLLARS and CENTS	LF	132.000	22

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	ITEM NO	DESC CODE	S.P. NO.				
	420	2003	002	CL C CONC (ABUT) and DOLLARS CENTS	CY	191.100	23
	420	2004	002	CL C CONC (BENT) and DOLLARS CENTS	CY	760.600	24
	420	2013	002	CL C CONC (MISC) and DOLLARS CENTS	CY	140.000	25
	420	2033	002	CL S CONC (APPR SLAB) and DOLLARS CENTS	CY	312.600	26
	420	2034	002	CL S CONC (BRIDGE SDWLK) and DOLLARS CENTS	CY	426.400	27
	420	2049	002	CL S CONC (BRIDGE MEDIAN) and DOLLARS CENTS	CY	539.600	28
	422	2001		REINF CONC SLAB and DOLLARS CENTS	SF	106,350.100	29
	423	2001		RETAINING WALL (MSE) and DOLLARS CENTS	SF	66,256.000	30
	423	2005		RETAINING WALL (TEMP WALL) and DOLLARS CENTS	SF	31,946.000	31
	423	2007		RETAINING WALL (SPREAD FOOTING) and DOLLARS CENTS	SF	6,070.000	32
	425	2068	001	PRESTR CONC GIRDER (TX54) and DOLLARS CENTS	LF	19,416.450	33

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	ITEM NO	DESC CODE	S.P. NO.				
	432	2001		RIPRAP (CONC)(4 IN) and DOLLARS CENTS	CY	799.000	34
	442	2048	016	STRUCTURAL STEEL(MISC NON-BRIDGE) and DOLLARS CENTS	LB	1,294.000	35
	450	2064	001	RAIL (TY C221) and DOLLARS CENTS	LF	5,991.180	36
	450	2076	001	RAIL (HANDRAIL)(TY E) and DOLLARS CENTS	LF	1,760.000	37
	454	2001		SEALED EXPANSION JOINT (4 IN)(SEJ-A) and DOLLARS CENTS	LF	405.550	38
	459	2008		GABION MATTRESSES (PVC)(18 IN) and DOLLARS CENTS	SY	274.000	39
	459	2009		GABION MATTRESSES (GALV)(6 IN) and DOLLARS CENTS	SY	7,061.000	40
	460	2003		CMP (GAL STL 18 IN) and DOLLARS CENTS	LF	124.000	41
	460	2004		CMP (GAL STL 24 IN) and DOLLARS CENTS	LF	110.000	42
	460	2014		CMP AR (GAL STL DES 2) and DOLLARS CENTS	LF	1,410.000	43
	460	2015		CMP AR (GAL STL DES 3) and DOLLARS CENTS	LF	1,008.000	44

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	ITEM NO	DESC CODE	S.P. NO.				
	460	2016		CMP AR (GAL STL DES 4) and DOLLARS CENTS	LF	786.000	45
	462	2001	015	CONC BOX CULV (3 FT X 2 FT) and DOLLARS CENTS	LF	5,198.000	46
	462	2002	015	CONC BOX CULV (3 FT X 3 FT) and DOLLARS CENTS	LF	673.000	47
	462	2003	015	CONC BOX CULV (4 FT X 2 FT) and DOLLARS CENTS	LF	710.000	48
	462	2006	015	CONC BOX CULV (5 FT X 2 FT) and DOLLARS CENTS	LF	623.000	49
	462	2007	015	CONC BOX CULV (5 FT X 3 FT) and DOLLARS CENTS	LF	728.000	50
	462	2073	015	CONC BOX CULV (10 FT X 2 FT) and DOLLARS CENTS	LF	62.000	51
	464	2003	006	RC PIPE (CL III)(18 IN) and DOLLARS CENTS	LF	9,102.000	52
	464	2005	006	RC PIPE (CL III)(24 IN) and DOLLARS CENTS	LF	1,579.000	53
	464	2007	006	RC PIPE (CL III)(30 IN) and DOLLARS CENTS	LF	32.000	54
	465	2080	001	INLET (COMPL)(DROP)(TY 3) and DOLLARS CENTS	EA	1.000	55

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	ITEM NO	DESC CODE	S.P. NO.				
	465	2092	001	MANH (COMPL)(TY 1) and DOLLARS CENTS	EA	13.000	56
	465	2143	001	INLET (COMPL)(TRAFFIC)(TY X-1) and DOLLARS CENTS	EA	1.000	57
	465	2188	001	INLET (COMPL)(DROP)(TY Y-1) and DOLLARS CENTS	EA	1.000	58
	465	2405	001	INLET (COMPL)(CURB)(TY C) and DOLLARS CENTS	EA	74.000	59
	465	2486	001	INLET (COMPL)(TRAFFIC)(TY W-1) and DOLLARS CENTS	EA	1.000	60
	465	2525	001	INLET (COMPL) (TRENCH DRAIN) and DOLLARS CENTS	EA	4.000	61
	466	2005		WINGWALL (SW-0)(HW=3 FT) and DOLLARS CENTS	EA	5.000	62
	466	2019		WINGWALL (FW-0)(HW=3 FT) and DOLLARS CENTS	EA	2.000	63
	466	2020		WINGWALL (FW-0)(HW=4 FT) and DOLLARS CENTS	EA	3.000	64
	466	2175		HEADWALL (CH-FW-A-45)(DES= 2) and DOLLARS CENTS	EA	2.000	65
	467	2154		SET (TY I)(S= 4 FT)(HW= 3 FT)(6:1)(C) and DOLLARS CENTS	EA	4.000	66

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	ITEM NO	DESC CODE	S.P. NO.				
	467	2173		SET (TY I)(S= 3 FT)(HW= 4 FT)(6:1)(P) DOLLARS and CENTS	EA	2.000	67
	467	2177		SET (TY I)(S= 4 FT)(HW= 3 FT)(6:1)(P) DOLLARS and CENTS	EA	2.000	68
	467	2222		SET (TY II)(18 IN)(RCP)(4:1)(C) DOLLARS and CENTS	EA	1.000	69
	467	2224		SET (TY II)(24 IN)(RCP)(4:1)(C) DOLLARS and CENTS	EA	2.000	70
	467	2236		SET (TY II)(24 IN)(RCP)(6:1)(C) DOLLARS and CENTS	EA	2.000	71
	467	2273		SET (TY II)(18 IN)(CMP)(6:1)(C) DOLLARS and CENTS	EA	2.000	72
	467	2275		SET (TY II)(24 IN)(CMP)(6:1)(C) DOLLARS and CENTS	EA	4.000	73
	467	2286		SET (TY II)(18 IN)(RCP)(6:1)(P) DOLLARS and CENTS	EA	2.000	74
	467	2316		SET (TY II)(DES 3)(CMP)(3:1)(C) DOLLARS and CENTS	EA	1.000	75
	467	2323		SET (TY II)(DES 3)(CMP)(4:1)(C) DOLLARS and CENTS	EA	1.000	76
	467	2329		SET (TY II)(DES 2)(CMP)(6:1)(C) DOLLARS and CENTS	EA	9.000	77

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	ITEM NO	DESC CODE	S.P. NO.				
	467	2331		SET (TY II)(DES 4)(CMP)(6:1)(C) and DOLLARS CENTS	EA	4.000	78
	467	2336		SET (TY II)(DES 2)(CMP)(6:1)(P) and DOLLARS CENTS	EA	9.000	79
	467	2337		SET (TY II)(DES 3)(CMP)(6:1)(P) and DOLLARS CENTS	EA	6.000	80
	467	2338		SET (TY II)(DES 4)(CMP)(6:1)(P) and DOLLARS CENTS	EA	8.000	81
	481	2002		PVC PIPE (SDR-35)(6 IN) and DOLLARS CENTS	LF	61.000	82
	481	2027		PVC PIPE (SCH 80)(4 IN) and DOLLARS CENTS	LF	91.000	83
	496	2001		REMOV STR (BOX CULVERT) and DOLLARS CENTS	EA	2.000	84
	496	2016		REMOV STR (PIPE) and DOLLARS CENTS	EA	6.000	85
	496	2042		REMOV STR (SMALL) and DOLLARS CENTS	EA	3.000	86
	496	2051		REMOV STR (DRIVEWAY CULVERT) and DOLLARS CENTS	EA	3.000	87
	500	2001	005	MOBILIZATION and DOLLARS CENTS	LS	1.000	88

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	ITEM NO	DESC CODE	S.P. NO.				
	502	2001	033	BARRICADES, SIGNS AND TRAFFIC HANDLING DOLLARS and CENTS	MO	28.000	89
	506	2009	011	ROCK FILTER DAMS (REMOVE) DOLLARS and CENTS	LF	1,508.000	90
	506	2016	011	CONSTRUCTION EXITS (INSTALL) (TY 1) DOLLARS and CENTS	SY	468.000	91
	506	2019	011	CONSTRUCTION EXITS (REMOVE) DOLLARS and CENTS	SY	468.000	92
	506	2026	011	FRNT END LOADER WORK (ERSN & SEDM CONT) DOLLARS and CENTS	HR	40.000	93
	506	2030	011	CONSTRUCTION PERIMETER FENCE DOLLARS and CENTS	LF	2,110.000	94
	506	2034	011	TEMPORARY SEDIMENT CONTROL FENCE DOLLARS and CENTS	LF	4,490.000	95
	506	2044	011	ROCK FILTER DAMS (INSTALL)(TY 5) DOLLARS and CENTS	LF	1,508.000	96
	508	2001		CONSTRUCTING DETOURS DOLLARS and CENTS	STA	68.000	97
	508	2002		CONSTRUCTING DETOURS DOLLARS and CENTS	SY	10,433.000	98

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	ITEM NO	DESC CODE	S.P. NO.				
	508	2003		CONSTRUCTING DETOURS DOLLARS and CENTS	EA	6.000	99
	512	2001	002	PORT CTB (FUR & INST)(SAFETY SH)(TY 1) DOLLARS and CENTS	LF	15,770.000	100
	512	2019	002	PORT CTB (MOVE)(SAFETY SH)(TY 1) DOLLARS and CENTS	LF	5,340.000	101
	512	2037	002	PORT CTB (REMOVE)(SAFETY SH)(TY 1) DOLLARS and CENTS	LF	15,770.000	102
	529	2040		CONC CURB (TY II)(MOD) DOLLARS and CENTS	LF	39,587.000	103
	529	2061		CONC CURB (TY C1) DOLLARS and CENTS	LF	442.000	104
	529	2094		CONC CURB (TY F3) DOLLARS and CENTS	LF	1,760.000	105
	530	2010		DRIVEWAYS (CONC) DOLLARS and CENTS	SY	8,076.000	106
	530	2011		DRIVEWAYS (ACP) DOLLARS and CENTS	SY	1,075.000	107
	531	2011		CURB RAMPS (TY 8) DOLLARS and CENTS	EA	24.000	108
	531	2014		CURB RAMPS (TY 22) DOLLARS and CENTS	EA	1.000	109

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	ITEM NO	DESC CODE	S.P. NO.				
	531	2015		CONC SIDEWALKS (4") and DOLLARS CENTS	SY	11,640.000	110
	531	2017		CURB RAMPS (TY 21) and DOLLARS CENTS	EA	10.000	111
	531	2041		CURB RAMPS (TY 10) and DOLLARS CENTS	EA	6.000	112
	545	2001		CRASH CUSH ATTEN (INSTL) and DOLLARS CENTS	EA	4.000	113
	545	2049		CRASH CUSH ATTEN (INSTL)(WORK ZONE) and DOLLARS CENTS	EA	21.000	114
	545	2050		CRASH CUSH ATTEN(MOV&RESET)(WORK ZONE) and DOLLARS CENTS	EA	21.000	115
	545	2051		CRASH CUSH ATTEN (REMOVE)(WORK ZONE) and DOLLARS CENTS	EA	22.000	116
	556	2006		PIPE UNDERDRAINS (TY 6) (6") and DOLLARS CENTS	LF	4,253.000	117
	618	2086		CONDT (PVC)(SCHD 80)(2")(TRENCH)(ROCK) and DOLLARS CENTS	LF	164.000	118
	618	2088		CONDT (PVC)(SCHD 80)(3")(TRENCH)(ROCK) and DOLLARS CENTS	LF	60.000	119

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	ITEM NO	DESC CODE	S.P. NO.				
	620	2009	001	ELEC CONDR (NO. 6) BARE DOLLARS and CENTS	LF	1,541.000	120
	620	2010	001	ELEC CONDR (NO. 6) INSULATED DOLLARS and CENTS	LF	173.000	121
	621	2004		TRAY CABLE (4 CONDR) (12 AWG) DOLLARS and CENTS	LF	927.000	122
	624	2013	014	GROUND BOX TY D (162922) DOLLARS and CENTS	EA	3.000	123
	628	2295	003	ELC SRV TY D 120/240 070 (NS)AL(E)TP(O) DOLLARS and CENTS	EA	2.000	124
	636	2001	014	ALUMINUM SIGNS (TY A) DOLLARS and CENTS	SF	6.750	125
	644	2001		IN SM RD SN SUP&AM TY10BWG(1)SA(P) DOLLARS and CENTS	EA	40.000	126
	644	2004		IN SM RD SN SUP&AM TY10BWG(1)SA(T) DOLLARS and CENTS	EA	11.000	127
	644	2006		IN SM RD SN SUP&AM TY10BWG(1)SA(U) DOLLARS and CENTS	EA	5.000	128
	644	2025		IN SM RD SN SUP&AM TYS80(1)SA(T) DOLLARS and CENTS	EA	6.000	129
	644	2027		IN SM RD SN SUP&AM TYS80(1)SA(U) DOLLARS and CENTS	EA	1.000	130

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	ITEM NO	DESC CODE	S.P. NO.				
	644	2028		IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT) DOLLARS and CENTS	EA	1.000	131
	644	2042		IN SM RD SN SUP&AM TYS80(2)SA(P) DOLLARS and CENTS	EA	2.000	132
	644	2058		RELOCATE SM RD SN SUP & AM TY S80 DOLLARS and CENTS	EA	3.000	133
	644	2060		REMOVE SM RD SN SUP & AM DOLLARS and CENTS	EA	70.000	134
	644	2085		RELOCATE SM RD SN SUP & AM (SIGN ONLY) DOLLARS and CENTS	EA	1.000	135
	644	2090		SM RD SGN SUP&AM TY A(INST SIGN ONLY) DOLLARS and CENTS	EA	1.000	136
	658	2267		INSTL DEL ASSM (D-SY)SZ 1(FLX)SRF DOLLARS and CENTS	EA	66.000	137
	658	2316		INSTL OM ASSM (OM-2Z)(FLX)GND DOLLARS and CENTS	EA	69.000	138
	658	2318		INSTL OM ASSM (OM-2Z)(FLX)SRF DOLLARS and CENTS	EA	5.000	139
	658	2328		REMOVE DELIN & OBJECT MARKERS ASSMS DOLLARS and CENTS	EA	72.000	140
	662	2001		WK ZN PAV MRK NON-REMOV (W) 4" (BRK) DOLLARS and CENTS	LF	2,405.000	141

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	ITEM NO	DESC CODE	S.P. NO.				
	662	2002		WK ZN PAV MRK NON-REMOV (W) 4" (DOT) DOLLARS and CENTS	LF	44.000	142
	662	2004		WK ZN PAV MRK NON-REMOV (W) 4" (SLD) DOLLARS and CENTS	LF	35,401.000	143
	662	2012		WK ZN PAV MRK NON-REMOV (W) 8" (SLD) DOLLARS and CENTS	LF	2,580.000	144
	662	2016		WK ZN PAV MRK NON-REMOV (W) 24" (SLD) DOLLARS and CENTS	LF	42.000	145
	662	2017		WK ZN PAV MRK NON-REMOV (W) (ARROW) DOLLARS and CENTS	EA	15.000	146
	662	2018		WK ZN PAV MRK NON-REMOV (W) (DBL ARROW) DOLLARS and CENTS	EA	3.000	147
	662	2023		WK ZN PAV MRK NON-REMOV (W) (RR XING) DOLLARS and CENTS	EA	4.000	148
	662	2027		WK ZN PAV MRK NON-REMOV (W) (WORD) DOLLARS and CENTS	EA	16.000	149
	662	2030		WK ZN PAV MRK NON-REMOV (Y) 4" (BRK) DOLLARS and CENTS	LF	200.000	150
	662	2032		WK ZN PAV MRK NON-REMOV (Y) 4" (SLD) DOLLARS and CENTS	LF	37,672.000	151

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	ITEM NO	DESC CODE	S.P. NO.				
	662	2064		WK ZN PAV MRK REMOV (W) 4" (BRK) DOLLARS and CENTS	LF	30.000	152
	662	2067		WK ZN PAV MRK REMOV (W) 4" (SLD) DOLLARS and CENTS	LF	29,853.000	153
	662	2075		WK ZN PAV MRK REMOV (W) 8" (SLD) DOLLARS and CENTS	LF	1,730.000	154
	662	2079		WK ZN PAV MRK REMOV (W) 24" (SLD) DOLLARS and CENTS	LF	86.000	155
	662	2084		WK ZN PAV MRK REMOV (W) (ARROW) DOLLARS and CENTS	EA	9.000	156
	662	2094		WK ZN PAV MRK REMOV (W) (WORD) DOLLARS and CENTS	EA	6.000	157
	662	2099		WK ZN PAV MRK REMOV (Y) 4" (SLD) DOLLARS and CENTS	LF	31,793.000	158
	662	2113		WK ZN PAV MRK SHT TERM (TAB) TY W DOLLARS and CENTS	EA	2,536.000	159
	662	2115		WK ZN PAV MRK SHT TERM (TAB) TY Y-2 DOLLARS and CENTS	EA	3,034.000	160
	666	2006		REFL PAV MRK TY I (W) 4" (DOT)(100MIL) DOLLARS and CENTS	LF	326.000	161
	666	2036		REFL PAV MRK TY I (W) 8" (SLD)(100MIL) DOLLARS and CENTS	LF	3,547.000	162

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	666	2048		REFL PAV MRK TY I (W) 24"(SLD)(100MIL) DOLLARS and CENTS	LF	3,580.000	163
	666	2054		REFL PAV MRK TY I (W) (ARROW) (100MIL) DOLLARS and CENTS	EA	27.000	164
	666	2057		REFL PAV MRK TY I (W)(BIKE ARW)(100MIL) DOLLARS and CENTS	EA	23.000	165
	666	2063		REFL PAV MRK TY I(W)(BIKE SYML)(100MIL) DOLLARS and CENTS	EA	23.000	166
	666	2096		REFL PAV MRK TY I (W) (WORD) (100MIL) DOLLARS and CENTS	EA	21.000	167
	666	2102		REF PAV MRK TY I(W)36"(YLD TRI)(100MIL) DOLLARS and CENTS	EA	16.000	168
	666	2132		REFL PAV MRK TY I (Y) 24"(SLD)(100MIL) DOLLARS and CENTS	LF	599.000	169
	666	2141		REFL PAV MRK TY I (Y)(MED NOSE)(100MIL) DOLLARS and CENTS	EA	1.000	170
	666	2143		REF PAV MRK TY II (W) 4" (DOT) DOLLARS and CENTS	LF	326.000	171
	666	2153		REF PAV MRK TY II (W) 8" (SLD) DOLLARS and CENTS	LF	4,147.000	172
	666	2157		REF PAV MRK TY II (W) 24" (SLD) DOLLARS and CENTS	LF	3,580.000	173

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	666	2160		REF PAV MRK TY II (W) (ARROW) DOLLARS and CENTS	EA	27.000	174
	666	2161		REF PAV MRK TY II (W) (BIKE ARROW) DOLLARS and CENTS	EA	23.000	175
	666	2163		REF PAV MRK TY II (W) (BIKE SYMBOL) DOLLARS and CENTS	EA	23.000	176
	666	2173		REF PAV MRK TY II (W) (WORD) DOLLARS and CENTS	EA	21.000	177
	666	2175		REF PAV MRK TY II (W) 36" (YLD TRI) DOLLARS and CENTS	EA	16.000	178
	666	2185		REF PAV MRK TY II (Y) 24" (SLD) DOLLARS and CENTS	LF	599.000	179
	666	2188		REF PAV MRK TY II (Y) (MED NOSE) DOLLARS and CENTS	EA	1.000	180
	672	2012	034	REFL PAV MRKR TY I-C DOLLARS and CENTS	EA	478.000	181
	672	2015	034	REFL PAV MRKR TY II-A-A DOLLARS and CENTS	EA	321.000	182
	677	2001		ELIM EXT PAV MRK & MRKS (4") DOLLARS and CENTS	LF	350.000	183
	677	2003		ELIM EXT PAV MRK & MRKS (8") DOLLARS and CENTS	LF	825.000	184

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	677	2007		ELIM EXT PAV MRK & MRKS (24") DOLLARS and CENTS	LF	210.000	185
	677	2008		ELIM EXT PAV MRK & MRKS (ARROW) DOLLARS and CENTS	EA	2.000	186
	677	2009		ELIM EXT PAV MRK & MRKS (DBL ARROW) DOLLARS and CENTS	EA	5.000	187
	677	2018		ELIM EXT PAV MRK & MRKS (WORD) DOLLARS and CENTS	EA	2.000	188
	680	2003		INSTALL HWY TRF SIG (SYSTEM) DOLLARS and CENTS	EA	2.000	189
	682	2001	001	BACK PLATE (12 IN) (3 SEC) DOLLARS and CENTS	EA	16.000	190
	682	2003	001	BACK PLATE (12 IN) (5 SEC) DOLLARS and CENTS	EA	6.000	191
	682	2022	001	VEH SIG SEC (12 IN) LED (GRN ARW) DOLLARS and CENTS	EA	6.000	192
	682	2023	001	VEH SIG SEC (12 IN) LED (GRN) DOLLARS and CENTS	EA	20.000	193
	682	2024	001	VEH SIG SEC (12 IN) LED (YEL ARW) DOLLARS and CENTS	EA	6.000	194
	682	2025	001	VEH SIG SEC (12 IN) LED (YEL) DOLLARS and CENTS	EA	22.000	195

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	682	2027	001	VEH SIG SEC (12 IN) LED (RED) DOLLARS and CENTS	EA	22.000	196
	682	2043	001	PED SIG SEC (12")(2 IND)(HOUSING ONLY) DOLLARS and CENTS	EA	16.000	197
	684	2009		TRF SIG CBL (TY A) (12 AWG) (4 CONDR) DOLLARS and CENTS	LF	3,289.000	198
	684	2012		TRF SIG CBL (TY A) (12 AWG) (7 CONDR) DOLLARS and CENTS	LF	4,008.000	199
	684	2080		TRF SIG CBL (TY C) (14 AWG) (2 CONDR) DOLLARS and CENTS	LF	3,487.000	200
	686	2005		INS TRF SIG PL AM(S) STR (TY B) DOLLARS and CENTS	EA	4.000	201
	686	2006		INS TRF SIG PL AM(S) STR (TY B) LUM DOLLARS and CENTS	EA	4.000	202
	686	2039		INS TRF SIG PL AM(S) 1 ARM (40') DOLLARS and CENTS	EA	2.000	203
	687	2001	004	PED POLE ASSEMBLY DOLLARS and CENTS	EA	2.000	204
	690	2009		REMOVAL OF CABLES DOLLARS and CENTS	LF	4,650.000	205
	690	2024		REMOVAL OF SIGNAL HEAD ASSM DOLLARS and CENTS	EA	7.000	206

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	690	2025		REPLACE OF SIGNAL HEAD ASSM DOLLARS and CENTS	EA	7.000	207
	690	2030		REMOVAL OF PEDESTRIAN PUSH BUTTONS DOLLARS and CENTS	EA	3.000	208
	690	2032		INSTALL OF PEDESTRIAN PUSH BUTTONS DOLLARS and CENTS	EA	3.000	209
	690	2051		REMOVAL OF SIGNAL POLE ASSM DOLLARS and CENTS	EA	2.000	210
	690	2063		REMOVAL OF CONCRETE FOUNDATIONS DOLLARS and CENTS	EA	2.000	211
	690	2182		MODIFY OF GROUND BOXES DOLLARS and CENTS	EA	2.000	212
	730	2119	023	STRIP MOWING DOLLARS and CENTS	CYC	9.000	213
	734	2002		LITTER REMOVAL DOLLARS and CENTS	CYC	9.000	214
	2046	2003		STORM WTR TRT UNIT (8' X 11') DOLLARS and CENTS	EA	6.000	215
	3224	2008		D-GR HMA(QCQA) TY-B PG64-22 DOLLARS and CENTS	TON	41,247.000	216
	3224	2010		D-GR HMA(QCQA) TY-B PG70-22 DOLLARS and CENTS	TON	24,787.000	217

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	3224	2030		D-GR HMA(QCQA) TY-C SAC-B PG76-22 DOLLARS and CENTS	TON	12,499.000	218
	6006	2001		SPREAD SPECTRUM RADIO DOLLARS and CENTS	EA	2.000	219
	6006	2003		HELIAX CABLE DOLLARS and CENTS	LF	149.000	220
	6006	2005		ANTENNA (UNI-DIRECTIONAL) DOLLARS and CENTS	EA	2.000	221
	6007	2001		REMOVING TRAFFIC SIGNALS DOLLARS and CENTS	EA	2.000	222
	6266	2001	017	VIVDS PROCESSOR SYSTEM DOLLARS and CENTS	EA	2.000	223
	6266	2002	017	VIVDS CAMERA ASSEMBLY DOLLARS and CENTS	EA	12.000	224
	6266	2003	017	VIVDS SET-UP SYSTEM DOLLARS and CENTS	EA	2.000	225
	6266	2005	017	VIVDS COMMUNICATION CABLE (COAXIAL) DOLLARS and CENTS	LF	3,939.000	226
	6834	2001		PORTABLE CHANGEABLE MESSAGE SIGN DOLLARS and CENTS	DAY	240.000	227
	6982	2007		RELOCATE EXISTING VIVDS DOLLARS and CENTS	EA	2.000	228

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	8251	2003	005	RE PM W/RET REQ TY I(W)4"(BRK)(100MIL) DOLLARS and CENTS	LF	5,008.000	229
	8251	2006	005	RE PM W/RET REQ TY I(W)4"(SLD)(100MIL) DOLLARS and CENTS	LF	30,992.000	230
	8251	2015	005	RE PM W/RET REQ TY I(Y)4"(BRK)(100MIL) DOLLARS and CENTS	LF	580.000	231
	8251	2018	005	RE PM W/RET REQ TY I(Y)4"(SLD)(100MIL) DOLLARS and CENTS	LF	32,928.000	232
	8251	2025	005	RE PM W/RET REQ TY II (W) 4" (BRK) DOLLARS and CENTS	LF	4,992.000	233
	8251	2026	005	RE PM W/RET REQ TY II (W) 4" (SLD) DOLLARS and CENTS	LF	30,992.000	234
	8251	2029	005	RE PM W/RET REQ TY II (Y) 4" (BRK) DOLLARS and CENTS	LF	580.000	235
	8251	2030	005	RE PM W/RET REQ TY II (Y) 4" (SLD) DOLLARS and CENTS	LF	32,928.000	236
	8260	2001		LED COUNTDOWN PEDESTRIAN MODULE DOLLARS and CENTS	EA	16.000	237
	8835	2001		ACCESSIBLE PEDESTRIAN SIGNAL UNITS DOLLARS and CENTS	EA	16.000	238

CONTROL : 1728-02-037, ETC
PROJECT : STP 2012(694), ETC
HIGHWAY : FM 306
COUNTY : COMAL

TEXAS DEPARTMENT OF TRANSPORTATION

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF
----- TRANSPORTATION JUNE 1, 2004.
STANDARD SPECIFICATIONS ARE INCORPORATED
INTO THE CONTRACT BY REFERENCE.

- ITEMS 1 TO 9 INCL., GENERAL REQUIREMENTS AND COVENANTS
- ITEM 100 PREPARING RIGHT OF WAY (103)
- ITEM 104 REMOVING CONCRETE
- ITEM 106 OBLITERATING ABANDONED ROAD
- ITEM 110 EXCAVATION (132)
- ITEM 132 EMBANKMENT (100)(204)(210)(216)(400)
- ITEM 161 COMPOST (160)
- ITEM 162 SODDING FOR EROSION CONTROL (166)(168)
- ITEM 164 SEEDING FOR EROSION CONTROL (162)(166)(168)
- ITEM 168 VEGETATIVE WATERING
- ITEM 169 SOIL RETENTION BLANKETS
- ITEM 316 SURFACE TREATMENTS (210)(300)(302)(520)
- ITEM 400 EXCAVATION AND BACKFILL FOR STRUCTURES (132)(401)(420)
(421)
- ITEM 402 TRENCH EXCAVATION PROTECTION
- ITEM 403 TEMPORARY SPECIAL SHORING (423)
- ITEM 416 DRILLED SHAFT FOUNDATIONS (420)(421)(440)(448)
- ITEM 420 CONCRETE STRUCTURES (400)(421)(427)(438)(440)(448)
- ITEM 422 REINFORCED CONCRETE SLAB (420)(421)(424)(440)
- ITEM 423 RETAINING WALLS (110)(132)(400)(420)(421)(424)(440)(445)
(556)
- ITEM 425 PRECAST PRESTRESSED CONCRETE STRUCTURAL MEMBERS (420)
(421)(424)(426)(427)(434)(440)
- ITEM 432 RIPRAP (420)(421)(427)(440)
- ITEM 442 METAL FOR STRUCTURES (441)(445)(446)(447)(448)(449)
- ITEM 450 RAILING (420)(421)(440)(441)(442)(445)(446)(448)(540)
- ITEM 454 BRIDGE EXPANSION JOINTS (442)
- ITEM 459 GABIONS AND GABION MATTRESSES
- ITEM 460 CORRUGATED METAL PIPE (400)(445)
- ITEM 462 CONCRETE BOX CULVERTS AND STORM DRAINS (400)(424)(464)

- (476)
- ITEM 464 REINFORCED CONCRETE PIPE (400)
- ITEM 465 MANHOLES AND INLETS (400)(420)(421)(440)(471)
- ITEM 466 HEADWALLS AND WINGWALLS (400)(420)(421)(440)(464)
- ITEM 467 SAFETY END TREATMENT (400)(420)(421)(432)(440)(445)(460)
(464)
- ITEM 481 PVC PIPE FOR DRAINS (400)
- ITEM 496 REMOVING STRUCTURES
- ITEM 500 MOBILIZATION
- ITEM 502 BARRICADES, SIGNS, AND TRAFFIC HANDLING
- ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL
CONTROLS
- ITEM 508 CONSTRUCTING DETOURS
- ITEM 512 PORTABLE CONCRETE TRAFFIC BARRIER (420)(421)(424)(440)
(442)
- ITEM 529 CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER (360)
(420)(421)(440)
- ITEM 530 INTERSECTIONS, DRIVEWAYS, AND TURNOUTS (247)(260)(263)
(275)(276)(292)(316)(330)(334)(340)(360)(421)(440)
- ITEM 531 SIDEWALKS (104)(360)(420)(421)(440)(530)
- ITEM 545 CRASH CUSHION ATTENUATORS (421)
- ITEM 556 PIPE UNDERDRAINS (402)(432)
- ITEM 618 CONDUIT (400)(445)(476)(622)
- ITEM 620 ELECTRICAL CONDUCTORS
- ITEM 621 TRAY CABLE
- ITEM 624 GROUND BOXES (421)(440)
- ITEM 628 ELECTRICAL SERVICES (441)(445)(449)(618)(620)(627)(656)
- ITEM 636 ALUMINUM SIGNS (643)
- ITEM 644 SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES (421)(440)
(441)(442)(445)(634)(636)(643)(656)
- ITEM 658 DELINEATOR AND OBJECT MARKER ASSEMBLIES (445)
- ITEM 662 WORK ZONE PAVEMENT MARKINGS (666)(668)(672)(677)
- ITEM 666 REFLECTORIZED PAVEMENT MARKINGS (316)(318)(662)(677)(678)
- ITEM 672 RAISED PAVEMENT MARKERS (677)(678)
- ITEM 677 ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS (300)
(302)(316)
- ITEM 680 INSTALLATION OF HIGHWAY TRAFFIC SIGNALS (610)(625)(627)
(634)(636)(656)
- ITEM 682 VEHICLE AND PEDESTRIAN SIGNAL HEADS
- ITEM 684 TRAFFIC SIGNAL CABLES
- ITEM 686 TRAFFIC SIGNAL POLE ASSEMBLIES (STEEL) (416)(421)(441)
(442)(445)(449)
- ITEM 687 PEDESTAL POLE ASSEMBLIES (445)(449)(656)(4003)
- ITEM 690 MAINTENANCE OF TRAFFIC SIGNALS (416)(421)(476)(610)(618)
(620)(622)(624)(625)(627)(628)(634)(636)(656)(680)(682)
(684)(685)(686)(687)(688)
- ITEM 730 ROADSIDE MOWING
- ITEM 734 LITTER REMOVAL

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE
 ----- PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED
 HEREON WHEREVER IN CONFLICT THEREWITH.

REQUIRED CONTRACT PROVISIONS, FEDERAL-AID CONSTRUCTION CONTRACTS
(FORM FHWA 1273, MARCH, 1994)

WAGE RATES

SPECIAL PROVISION "NOTICE TO ALL BIDDERS" (000---003)
SPECIAL PROVISION "NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO
ENSURE EQUAL EMPLOYMENT OPPORTUNITY" (000---004)
SPECIAL PROVISION "STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS" (000---006)
SPECIAL PROVISION "CERTIFICATION OF NONDISCRIMINATION IN EMPLOYMENT"
(000---009)
SPECIAL PROVISION "DEPARTMENT DIVISION MAILING AND PHYSICAL ADDRESS"
(000---011)
SPECIAL PROVISION "NOTICE OF CHANGES TO U.S. DEPARTMENT OF LABOR
REQUIRED PAYROLL INFORMATION" (000--1483)
SPECIAL PROVISION "ON-THE-JOB TRAINING PROGRAM" (000--1676)
SPECIAL PROVISION "DISADVANTAGED BUSINESS ENTERPRISE IN FEDERAL AID
CONTRACTS" (000--1966)
SPECIAL PROVISION "PARTNERING" (000--2329)
SPECIAL PROVISION "SCHEDULE OF LIQUIDATED DAMAGES" (000--2332)
SPECIAL PROVISION "IMPORTANT NOTICE TO CONTRACTORS" (000--2508)
SPECIAL PROVISION TO ITEM 1 (001---015)
SPECIAL PROVISION TO ITEM 2 (002---017)
SPECIAL PROVISION TO ITEM 3 (003---033)
SPECIAL PROVISION TO ITEM 4 (004---017)
SPECIAL PROVISION TO ITEM 5 (005---004)
SPECIAL PROVISION TO ITEM 6 (006---030)
SPECIAL PROVISIONS TO ITEM 7 (007---918)(007---971)
SPECIAL PROVISIONS TO ITEM 8 (008---009)(008---119)
SPECIAL PROVISIONS TO ITEM 9 (009---009)(009---015)(009---016)
SPECIAL PROVISION TO ITEM 100 (100---002)
SPECIAL PROVISION TO ITEM 161 (161---006)
SPECIAL PROVISION TO ITEM 164 (164---002)
SPECIAL PROVISION TO ITEM 166 (166---001)
SPECIAL PROVISION TO ITEM 169 (169---002)
SPECIAL PROVISION TO ITEM 247 (247---033)
SPECIAL PROVISION TO ITEM 260 (260---003)
SPECIAL PROVISION TO ITEM 275 (275---003)
SPECIAL PROVISION TO ITEM 300 (300---039)
SPECIAL PROVISION TO ITEM 302 (302---010)
SPECIAL PROVISION TO ITEM 316 (316---016)
SPECIAL PROVISION TO ITEM 318 (318---010)
SPECIAL PROVISION TO ITEM 330 (330---001)
SPECIAL PROVISION TO ITEM 340 (340---003)
SPECIAL PROVISION TO ITEM 360 (360---003)
SPECIAL PROVISION TO ITEM 416 (416---001)
SPECIAL PROVISION TO ITEM 420 (420---002)
SPECIAL PROVISION TO ITEM 421 (421---035)
SPECIAL PROVISION TO ITEM 424 (424---002)
SPECIAL PROVISION TO ITEM 425 (425---001)
SPECIAL PROVISION TO ITEM 440 (440---006)
SPECIAL PROVISION TO ITEM 441 (441---007)
SPECIAL PROVISION TO ITEM 442 (442---016)
SPECIAL PROVISION TO ITEM 448 (448---002)

SPECIAL PROVISION TO ITEM 450 (450---001)
 SPECIAL PROVISION TO ITEM 462 (462---015)
 SPECIAL PROVISION TO ITEM 464 (464---006)
 SPECIAL PROVISION TO ITEM 465 (465---001)
 SPECIAL PROVISION TO ITEM 476 (476---003)
 SPECIAL PROVISION TO ITEM 500 (500---005)
 SPECIAL PROVISION TO ITEM 502 (502---033)
 SPECIAL PROVISION TO ITEM 506 (506---011)
 SPECIAL PROVISION TO ITEM 512 (512---002)
 SPECIAL PROVISION TO ITEM 540 (540---023)
 SPECIAL PROVISION TO ITEM 620 (620---001)
 SPECIAL PROVISION TO ITEM 624 (624---014)
 SPECIAL PROVISION TO ITEM 628 (628---003)
 SPECIAL PROVISION TO ITEM 636 (636---014)
 SPECIAL PROVISION TO ITEM 643 (643---001)
 SPECIAL PROVISION TO ITEM 672 (672---034)
 SPECIAL PROVISION TO ITEM 682 (682---001)
 SPECIAL PROVISION TO ITEM 685 (685---014)
 SPECIAL PROVISION TO ITEM 687 (687---004)
 SPECIAL PROVISION TO ITEM 730 (730---023)
 SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 6266 (6266--017)
 SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 8251 (8251--005)

SPECIAL SPECIFICATIONS:

 ITEM 2046 STORMWATER TREATMENT SYSTEM
 ITEM 3224 DENSE-GRADED HOT-MIX ASPHALT (QC/QA) (300)(301)(320)(520)
 (585)
 ITEM 4003 SCREW-IN TYPE ANCHOR FOUNDATIONS (441)(442)(445)
 ITEM 6006 SPREAD SPECTRUM RADIOS FOR TRAFFIC SIGNALS
 ITEM 6007 REMOVING TRAFFIC SIGNALS
 ITEM 6266 VIDEO IMAGING VEHICLE DETECTION SYSTEM
 ITEM 6834 PORTABLE CHANGEABLE MESSAGE SIGN
 ITEM 6982 REMOVE AND RELOCATE EXISTING TRAFFIC MANAGEMENT EQUIPMENT
 (677)(8094)
 ITEM 8094 MOBILE RETROREFLECTIVITY DATA COLLECTION FOR PAVEMENT
 MARKINGS
 ITEM 8251 REFLECTORIZED PAVEMENT MARKINGS WITH RETROREFLECTIVE
 REQUIREMENTS (316)(318)(502)(677)(678)(8094)
 ITEM 8260 LED COUNTDOWN PEDESTRIAN SIGNAL MODULE (682)
 ITEM 8835 ACCESSIBLE PEDESTRIAN SIGNAL UNITS (618)(624)(682)(684)
 (688)

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH
 ----- PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER
 PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-
 LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL
 PROVISIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFI-
 CATIONS FOR THIS PROJECT.

SPECIAL SPECIFICATION
2046
Stormwater Treatment System

1. **Description.** Furnish and install the stormwater treatment system, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents. The stormwater treatment system shall consist of an underground precast structure that houses passive siphon-actuated, radial-flow media-filled filter cartridges. The siphon actuated radial flow filter cartridges shall be rechargeable and shall incorporate a self-actuated surface cleaning mechanism to increase the effective life of the filter media and to reduce the accumulation of material on the cartridge surface. Each radial flow filter cartridge shall operate at a predetermined flow rate through the use of an integrated flow control orifice located within each filter cartridge outlet manifold.
2. **Materials.** Provide new materials that comply with the details shown on the plans and in accordance with the following:
 - Item 420, “Concrete Structures”
 - Item 421, “Hydraulic Cement Concrete”
 - Item 429, “Concrete Structure Repair”
 - Item 440, “Reinforcing Steel”
 - Item 471, “Frames, Grates, Rings, and Covers”

Materials used for storm water treatment units and appurtenances must be capable of withstanding aggressive biological, chemical and loading environments, typical of the geographic area in which the units are being installed, including freeze-thaw weather cycles, earth pressure and hydrostatic pressures. Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square inch (psi).

- a. **Concrete Box.** Furnish Class S concrete for storm water treatment box unless otherwise shown on the plans. Construct precast storm water treatment box in accordance with Item 420, “Concrete Structures” or ASTM C 478. Air entrained concrete will not be required in precast concrete members. Use Type II Portland cement conforming to ASTM C 150.
- b. **Mortar.** Furnish mortar composed of 1 part hydraulic cement and 2 parts clean sand, hydrated lime, or lime putty may be added to the mix to a maximum of 10% by weight of the total dry mix.

c. **Traffic load.** Provide concrete box and riser that meet HL93 AASHTO LRFD live loading requirements.

d. **Sealing.** Apply Conseal CS-101 or approved equal sealant as shown on the information plans, as recommended by the manufacturer, or as directed by the Engineer.

e. **Frames, Grates, Rings, and Covers.** Furnish materials as shown on the plans and in accordance with Item 471, "Frames, Grates, Rings, and Covers".

f. **Treatment Unit.**

i. **General.** Provide storm water treatment system, pipe connection and appurtenances in accordance with the Drawings and these Specifications. Alternate designs shall be acceptable to the Engineer and not deviate from the functional requirements provided in these specifications. Alternate designs, including any structural re-design requirements, are to be designed and sealed by a licensed professional engineer registered in the State of Texas. All storm water treatment units must be provided by the same Manufacturer.

ii. **Performance.** Design of treatment units shall be in accordance with the Texas Commission on Environmental Quality manual "RG-348: Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices". Because different devices rely on different mechanisms to achieve desired performance, treatment devices shall additionally adhere to the following requirements.

1. **Cartridge Operation.** Each stormwater filtration system shall contain one or more siphon actuated media filter cartridges that maintain a uniform pressure profile across the face of the filter during operation. At the design flow rate the maximum filter hydraulic loading rate is not to exceed 2.1 gallons per minute per square foot of filter surface area. Stormwater shall enter the filter cartridges through sides and shall flow through the filter media radially from the outer perimeter to the inner cartridge lumen and shall have an average contact time no less than 38 seconds. The minimum thickness of media as measured from the sides to the inner cartridge lumen shall be no less than 7 inches.

2. **Cartridge Sediment Loading.** Filter cartridges shall be of a design that has demonstrated a minimum sediment retention capacity of 22 pounds of silty loam per cartridge in laboratory tests without a reduction in hydraulic capacity.

Laboratory data shall be corroborated with field observations showing similar longevity without impact to normal hydraulic performance of the stormwater filtration system. All laboratory and field tests submitted in support of this specification must have undergone peer review.

3. **Overflow.** Each stormwater filtration system shall include an internal, offline overflow bypass. Water first enters an inlet bay that is separate from the cartridge bay and separate from the outlet bay. Low flows travel from the inlet bay, through a transfer opening and into the cartridge bay. High flows enter the outlet bay by topping a weir separating the inlet and outlet bay. Flow rates beyond the design flow shall not enter the cartridge bay.
4. **Maintenance.** Each stormwater filtration system shall be sized for an annual maintenance cycle based on local historical rainfall data. Maintenance and inspection of cartridges should also be completely visible from the surface to allow for a more thorough inspection. Because filtration systems can deteriorate due to prolonged exposure to a wet condition, stormwater filtration systems shall drain down at the conclusion of each rain event. Systems which utilize cartridges that are continuously submerged shall not be accepted.

iii. **Internal Components.**

1. ABS manifold pipe shall meet ASTM specification F628. PVC manifold pipe shall meet ASTM specification D1785 and PVC fittings shall meet ASTM specification D2466.
2. Filter cartridge bottom pan, inner ring, and hood shall be constructed from linear low-density polyethylene (LLDPE) or ABS. Filter cartridge screen shall consist of 1" x 1/2" welded wire fabric (16 gauge minimum) with a bonded PVC coating. Internal parts shall consist of ABS or PVC material. Siphon-priming float shall be constructed from high-density polyethylene (HDPE). All miscellaneous nuts, bolts, screws, and other fasteners shall be stainless steel or aluminum.
3. An orifice plate shall be supplied with each cartridge to restrict flow rate to a maximum of 22.5 gpm per cartridge at system design head or as specified on drawings..
4. Underdrain Design: the size of the underdrain will provide a minimum of 0.067 in² of underdrain cross sectional area per 1 gpm of design flow rate.

For example, 105 gpm maximum design flow rate will require an underdrain with 7.035 in² of cross sectional area, which is equal to one 3” diameter pipe.

5. Filter media shall be in accordance with the Texas Commission on Environmental Quality manual “RG-348: Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices” and shall consist of a composite media known commonly as ZPG. ZPG consists of zeolite, perlite, and granular activated carbon. ZPG is a mixed media that shall be composed of a 1.3 ft³ outer layer of 100% Perlite (see below) and a 1.3 ft³ inner layer consisting of a mixture of 90% Zeolite (see below) and 10% Granular Activated Carbon (see below) in accordance with the Texas Commission on Environmental Quality’s requirements.

a. **Perlite Media.** Perlite media shall be made of natural siliceous volcanic rock free of any debris or foreign matter. The perlite media shall have a bulk density ranging from 6.5 to 8.5 lb/ft³ and particle sizes ranging from that passing through a 0.50 inch screen and retained on a U.S. Standard #8 sieve.

b. **Zeolite Media.** Zeolite media shall be made of naturally occurring clinoptilolite, which has a geological structure of potassium-calcium-sodium aluminosilicate. The zeolite media shall have a bulk density ranging from 44 to 48 lb/ft³, particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #6 sieve, and a cation exchange capacity ranging from 1.0 to 2.2 meq/g.

c. **Granular Activated Carbon.** Granular activated carbon (GAC) shall be made of lignite coal that has been steam activated. The GAC media shall have a bulk density ranging from 28 to 31 lb/ft³ and particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #8 sieve.

3. Construction.

a. **Submittals.** The manufacturer shall submit shop drawings for stormwater treatment system with vault, filters cartridges and accessory equipment. Drawings shall include principal dimensions, filter placement, location of piping, and unit foundation. In addition to drawings, the manufacturer shall submit an Operation and Maintenance Manual.

- b. **Contractor Provided Components.** All contractor-provided components shall meet the requirements of this section, the plans specifications and contract documents. In the case of conflict, the more stringent specification shall apply.
- i. Crushed rock base material shall be six-inch minimum layer of ¾-inch minus rock. Compact undisturbed sub-grade materials to 95% of maximum density at +/-2% of optimum moisture content. Unsuitable material below sub-grade shall be replaced to engineer's approval.
 - ii. Concrete shall have an unconfined compressive strength at 28 days of at least 4,000 psi, with ¾-inch round rock, a 4-inch slump maximum, and shall be placed within 90 minutes of initial mixing.
 - iii. Silicone Sealant shall be pure RTV silicone conforming to Federal Specification Number TT S001543A or TT S00230C or Engineer approved.
 - iv. Grout shall be non-shrink grout meeting the requirements of Corps of Engineers CRD-C588. Specimens molded, cured and tested in accordance with ASTM C-109 shall have minimum compressive strength of 6,200 psi. Grout shall not exhibit visible bleeding.
 - v. Backfill material shall be ¾-inch minus crushed rock, or approved equal.
- c. **Execution.**
- i. **Precast Concrete Vault.**
 1. Set precast vault on crushed rock base material that has been placed in maximum 12-inch lifts, loose thickness, and compacted to at least 95-percent of the maximum dry density as determined by the standard Proctor compaction test, ASTM D698, at moisture content of +/-2% of optimum water content.
 2. Vault floor shall slope 1/4 inch maximum across the width and slope downstream 1 inch per 12 foot of length. Vault top finish grade shall be even with surrounding finish grade surface unless otherwise noted on plans.
 3. Inlet and outlet pipes shall be stubbed in and connected to precast concrete vault according to Engineer's requirements and specifications.
 4. If grout is used, Contractor to grout all inlet and outlet pipes flush with or protruding up to 2 inches into interior of vault.
 - ii. **Ballast.** When required, ballast shall be placed to the dimensions specified by the engineer and noted on the data block. Ballast shall not encase the inlet and/or outlet piping. Provide 12" clearance from outside diameter of pipes.

- iii. **Clean Up.** Remove all excess materials, rocks, roots, or foreign material, leaving the site in a clean, complete condition approved by the engineer. All filter components shall be free of any foreign materials including concrete and excess sealant.

- iv. **Filter Cartridges.** Filter cartridges shall be delivered with the vault. Contractor shall take appropriate action to protect the cartridges from sediment and other debris during construction. Methods for protecting the cartridges include but are not limited to:
 - 1. Remove cartridges from the vault and store appropriately.
 - 2. If vault is equipped with underdrain bypass piping, Contractor may leave cartridges in the vault and allow stormwater entering collection system to bypass filter bay through underdrain bypass piping.
 - 3. Leave cartridges in the vault and plug inlet and outlet pipe to prevent stormwater from entering the vault.

The method ultimately selected shall be at Contractor's discretion and Contractor's risk.

Filter cartridges shall not be placed in operation until the vault is clean and the project site is clean and stabilized (construction erosion control measures no longer required). The project site includes any surface that contributes storm drainage to the stormwater treatment unit. All impermeable surfaces shall be clean and free of dirt and debris. All catch basins, manholes and pipes shall be free of dirt and sediments. Contact the manufacturer must be made by the contractor to assist with system activation and/or inspect the system for proper installation once site is clean and stabilized.

Contractor shall install filter cartridges when necessary. Tape shall be cleanly and completely removed from manifold fitting openings. ¼-turn connects shall be glued and inserted into all manifold fittings to be equipped with a filter cartridge. Filter cartridges shall be turned onto the connector until they reach the hard stop on the connector – which is approximately ¼ of a revolution. Plugs shall be inserted without glue in all manifold fittings not equipped with a filter cartridge.

- 4. **Measurement.** Storm water treatment units, satisfactorily completed in accordance with the plans, specifications, and the Texas Commission on Environmental Quality manual “RG-348: Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices” manual, will be measured by each, of the type specified, complete in place.

5. **Payment.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit bid for “Storm Water Treatment Unit”. This price is full compensation for furnishing concrete, reinforcing steel, grout, aluminum and castings, frames, grates, rings and covers, treatment units, internal components, connection pipes, excavation, and backfill and for all other materials, tools equipment, labor, incidentals, cleaning, and maintenance as necessary to install storm water treatment units, complete in place, in accordance with the plans and specifications.