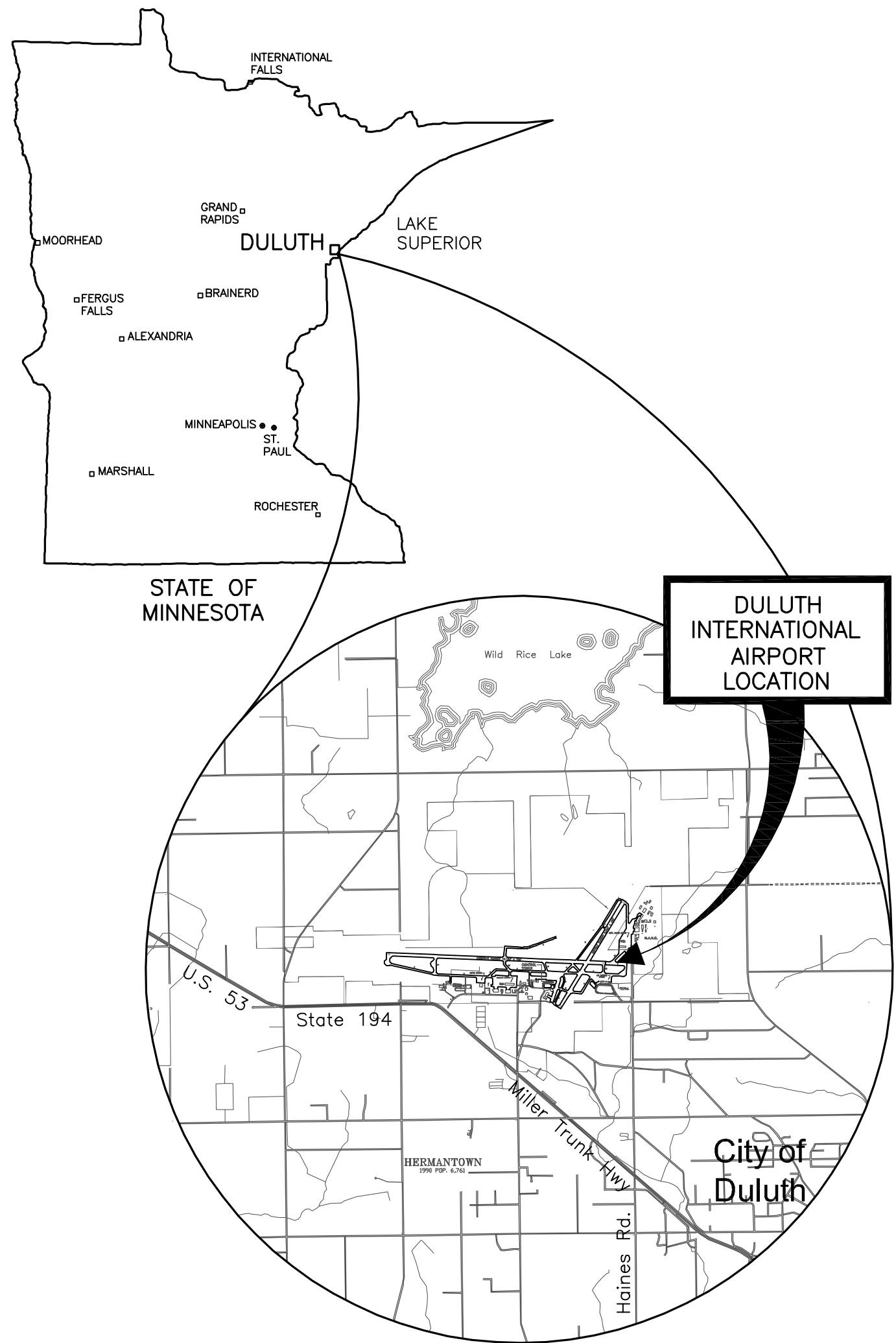


DRAWING LIST

ADD #1	G1-00 G1-01	COVER SHEET DRAWING LIST AND LOCATION MAP
ADD #1	CIVIL SITE	
	C001	SUMMARY OF QUANTITIES
	C002	SAFETY AND SECURITY NOTES AND DETAILS
	C003	GENERAL CONSTRUCTION NOTES, LEGEND, AND ABBREVIATIONS
	C004	ULTIMATE DEVELOPMENT SITE PLAN
	C005	CONTRACT LAYOUT PLAN & CONTRACT NOTES
	C006	HORIZONTAL AND VERTICAL CONTROL PLAN & NOTES
	C007	SHEET LAYOUT PLAN CIVIL SITE
	C008	GEOTECHNICAL BORING LAYOUT AND INFORMATION
	C050	CIVIL PHASING PLAN
	C100	DEMOLITION, CLEARING AND GRUBBING OVERALL PLAN AND NOTES
	C101	DEMOLITION, CLEARING AND GRUBBING PLAN (SHEET 1 OF 6)
	C102	DEMOLITION, CLEARING AND GRUBBING PLAN (SHEET 2 OF 6)
	C103	DEMOLITION, CLEARING AND GRUBBING PLAN (SHEET 3 OF 6)
	C104	DEMOLITION, CLEARING AND GRUBBING PLAN (SHEET 4 OF 6)
	C105	DEMOLITION, CLEARING AND GRUBBING PLAN (SHEET 5 OF 6)
	C106	DEMOLITION, CLEARING AND GRUBBING PLAN (SHEET 6 OF 6)
	C107	DEMOLITION DETAILS AND PHOTOS
	C200	HORIZONTAL GEOMETRY DATA
	C201	GEOMETRY PLAN (SHEET 1 OF 6)
	C202	GEOMETRY PLAN (SHEET 2 OF 6)
	C203	GEOMETRY PLAN (SHEET 3 OF 6)
	C204	GEOMETRY PLAN (SHEET 4 OF 6)
	C205	GEOMETRY PLAN (SHEET 5 OF 6)
	C206	GEOMETRY PLAN (SHEET 6 OF 6)
	C207	TYPICAL PAVEMENT SECTIONS (SHEET 1 OF 2)
	C208	TYPICAL PAVEMENT SECTIONS (SHEET 2 OF 2)
	C209	CONCRETE PAVEMENT JOINT DETAILS
	C210	TYPICAL CURB AND GUTTER DETAILS
	C211	FENCING LAYOUT SITE PLAN AND NOTES
	C212	FENCING AND GATE DETAILS (SHEET 1 OF 3)
	C213	FENCING AND GATE DETAILS (SHEET 2 OF 3)
	C214	FENCING AND GATE DETAILS (SHEET 3 OF 3)
	C300	CENTERLINE PROFILE GRINDEN DRIVE STA: 0+00 TO STA: 41+44.42
	C301	CENTERLINE PROFILES ALL SECONDARY & TEMPORARY ROADS
	C400	GRADING AND EROSION CONTROL OVERALL PLAN AND NOTES
	C401	GRADING AND EROSION CONTROL PLAN (SHEET 1 OF 6)
	C402	GRADING AND EROSION CONTROL PLAN (SHEET 2 OF 6)
	C403	GRADING AND EROSION CONTROL PLAN (SHEET 3 OF 6)
	C404	GRADING AND EROSION CONTROL PLAN (SHEET 4 OF 6)
	C405	GRADING AND EROSION CONTROL PLAN (SHEET 5 OF 6)
	C406	GRADING AND EROSION CONTROL PLAN (SHEET 6 OF 6)
	C407	EROSION, AND SEDIMENTATION CONTROL NOTES AND DETAILS (SHEET 1 OF 4)
	C408	EROSION, AND SEDIMENTATION CONTROL NOTES AND DETAILS (SHEET 2 OF 4)
	C409	EROSION, AND SEDIMENTATION CONTROL NOTES AND DETAILS (SHEET 3 OF 4)
	C410	EROSION, AND SEDIMENTATION CONTROL NOTES AND DETAILS (SHEET 4 OF 4)
	C500	DRAINAGE OVERALL PLAN
	C501	DRAINAGE PLAN (SHEET 1 OF 6)
	C502	DRAINAGE PLAN (SHEET 2 OF 6)
	C503	DRAINAGE PLAN (SHEET 3 OF 6)
	C504	DRAINAGE PLAN (SHEET 4 OF 6)
	C505	DRAINAGE PLAN (SHEET 5 OF 6)
	C506	DRAINAGE PLAN (SHEET 6 OF 6)
	C507	DRAINAGE PROFILES
ADD #1	C600	SITE UTILITY OVERALL PLAN AND NOTES
	C601	SITE UTILITY PLAN (SHEET 1 OF 7)
	C602	SITE UTILITY PLAN (SHEET 2 OF 7)
	C603	SITE UTILITY PLAN (SHEET 3 OF 7)
	C604	SITE UTILITY PLAN (SHEET 4 OF 7)
	C605	SITE UTILITY PLAN (SHEET 5 OF 7)
	C606	SITE UTILITY PLAN (SHEET 6 OF 7)
	C607	STIE UTILITY PLAN (SHEET 7 OF 7)
	C608	SANITARY AND WATER MAIN PROFILES
	C609	UTILITY CITY OF DULUTH DETAILS (SHEET 1 OF 2)
	C610	UTILITY CITY OF DULUTH DETAILS (SHEET 2 OF 2)
	C700	PAVEMENT MARKING & SIGNAGE OVERALL SITE PLAN
	C701	PAVEMENT MARKING & SIGNAGE PLAN (SHEET 1 OF 6)
	C702	PAVEMENT MARKING & SIGNAGE PLAN (SHEET 2 OF 6)
	C703	PAVEMENT MARKING & SIGNAGE PLAN (SHEET 3 OF 6)
	C704	PAVEMENT MARKING & SIGNAGE PLAN (SHEET 4 OF 6)
	C705	PAVEMENT MARKING & SIGNAGE PLAN (SHEET 5 OF 6)
	C706	PAVEMENT MARKING & SIGNAGE PLAN (SHEET 6 OF 6)
	C707	PAVEMENT MARKING & SIGNAGE DETAILS
	CX01	CROSS SECTION KEY
	CX02	CROSS SECTIONS GRINDEN DRIVE STA: 14+00 TO STA: 20+40
	CX03	CROSS SECTIONS GRINDEN DRIVE STA: 20+50 TO STA: 23+16.51
	CX04	CROSS SECTIONS TEMPORARY ROAD (WEST) STA: 0+00 TO STA: 3+75
	CX05	CROSS SECTIONS TEMPORARY ROAD (EAST) STA: 0+50 TO STA: 3+50
	ELECTRICAL SITE	
	E100	SITE ELECTRICAL & COMM. OVERALL PLAN AND NOTES
	E101	SITE ELECTRICAL PLAN (SHEET 1 OF 6)
	E102	SITE ELECTRICAL PLAN (SHEET 2 OF 6)
	E103	SITE ELECTRICAL PLAN (SHEET 3 OF 6)
	E104	SITE ELECTRICAL PLAN (SHEET 4 OF 6)
	E105	SITE ELECTRICAL PLAN (SHEET 5 OF 6)
	E106	SITE ELECTRICAL PLAN (SHEET 6 OF 6)
	E400	ELECTRICAL NOTES AND DETAILS



1 LOCATION MAP
N.T.S.



Reynolds, Smith and Hills, Inc.
4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
218-722-1227 Fax: 218-722-1052
www.rsandh.com



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CONSULTANTS

Interior Architects:
SJA ARCHITECTS
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TEL: (218) 724-8576 / FAX: (218) 724-8717

Structural Engineers:
MBJ CONSULTING ENG.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-8306

M/E/P/PP Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

Baggage Handling Systems Consultants:
BNP ASSOCIATES INC.
101 East Ridge Office Park, Suite 103, Danbury CT 06810
TEL: (203) 792-3000 / FAX: (203) 792-4900

Landscaping Consultants:
APPOLD DESIGN
2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE
ADD	ADDENDUM # 1	
#1	04/28/2010	

DATE ISSUED: 05-17-2010

REVIEWED BY: CEP

DRAWN BY: RDRE

DESIGNED BY: JEH

AEP PROJECT NUMBER

213-1882-091

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SHEET TITLE

DRAWING LIST
AND
LOCATION MAP

SHEET NUMBER

G1-01

BID PACKAGE 1
ISSUED FOR BID

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B - PERMIT PKG & HERTZ AREA	TOTAL ESTIMATED QUANTITY	RECORD QUANTITY
1	P-100-3.1	MOBILIZATION	LS	1		1	
2	P-102-10.1	SAFETY AND SECURITY	LS	1		1	
3	P-104-5.1	PROJECT SURVEY AND STAKEOUT	LS	1		1	
4	P-105-5.1	TEMPORARY CONSTRUCTION ITEMS	LS	1		1	
5	F-162-5.1	14' WIDE x 6' DOUBLE LEAF MANUAL GATE	EACH	1		1	
6	F-162-5.2	6' CHAIN LINK FENCE W/ 3 STRANDS BARBED WIRE	LF	25		25	
7	2101.501/00010	CLEARING	ACRE	2		2	
8	2101.502/00010	CLEARING	TREE	75		75	
9	2101.506/00010	GRUBBING	ACRE	2		2	
10	2102.501/00010	PAVEMENT MARKING REMOVAL & SEAL COAT	SF	115		115	
11	2104.501	REMOVE WATER MAIN AND VALVES	LF	535		535	
12	2104.501/00016	REMOVE SEWER PIPE (STORM)	LF	1535		1535	
13	2104.501/00017	REMOVE SEWER PIPE (SANITARY)	LF	275		275	
14	2104.501/00035	REMOVE FENCE	LF	1050		1050	
15	2104.501/00040	REMOVE GUARD RAIL & FOUNDATION	LF	500		500	
16	2104.501/00062	REMOVE CONCRETE CURB AND GUTTER	LF	2700		2700	
17	2104.505/00010	REMOVE CONCRETE PAVEMENT	SY	1500		1500	
18	2104.505/00020	REMOVE BITUMINOUS PAVEMENT (NOMINAL 4-8")	SY	28000		28000	
19	2104.509/00094	REMOVE FLAGPOLE	EACH	1		1	
20	2104.509/00100	REMOVE MANHOLES OR CATCH BASINS	EACH	14		14	
21	2104.509/00101	REMOVE MANHOLE (SANITARY)	EACH	1		1	
22	2104.509/00111	REMOVE HYDRANT	EACH	2		2	
23	2104.511/00011	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LF	140		140	
24	2104.513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	515		515	
25	2105.503/00010	ROCK EXCAVATION	CY	2000		2000	
26	2105.505/00010	MUCK EXCAVATION	CY	2000		2000	
27	2105.515/00010	UNCLASSIFIED EXCAVATION (Civil Only)	CY	20736	6764	27500	
28	2105.521/00032	GRANULAR BORROW MOD 7% (CV)	CY	8408	3581	11989	
29	2105.525/00030	TOPSOIL BORROW (CV) OBTAINED OFFSITE	CY	905		905	
30	2105.604	GEOTEXTILE FABRIC TYPE V	SY	13500	7529	21029	
31	2211.503/00050	AGGREGATE BASE (CV) CLASS 5	CY	5600	2387	7987	
32	2221.503/00010	AGGREGATE SHOULDERING (CV) CLASS 1	CY	45	45	90	
33	2357.502/00010	BITUMINOUS MATERIAL FOR TACK COAT	GAL	1014	537	1551	
34	2358.501/00010	BITUMINOUS MATERIAL FOR PRIME COAT	GAL	929	805	1734	
35	2360.501/23600	TYPE (SP12.5) WEARING COURSE MIXTURE (3,F)	TON	840	650	1490	
36	2360.502/23600	TYPE (SP12.5) NON WEARING COURSE MIXTURE (3,F)	TON	1225	650	1875	
37	2401.515	INTEGRALLY COLORED SIDEWALK CONCRETE (MIX #3A32) W/ 6" x 6" WWF	SF	1925		1925	
38	2401.521/00030	STRUCTURE EXCAVATION CLASS R	CY	200	50	250	
39	2502.541	4" PERFORATED (PVC) PIPE UNDERDRAIN SDR35	LF	2790	535	3325	
40	2503.511	12" CORRUGATED HDPE PIPE SEWER	LF	590	212	802	
41	2503.511	15" CORRUGATED HDPE PIPE SEWER	LF	195		195	
42	2503.511	18" CORRUGATED HDPE PIPE SEWER	LF	355		355	
43	2503.511	24" CORRUGATED HDPE PIPE SEWER	LF	615		615	
44	2503.511	30" CORRUGATED HDPE PIPE SEWER	LF	85		85	
45	2503.511	42" CORRUGATED HDPE PIPE SEWER	LF	170		170	
46	2503.511/13080	8" PVC PIPE SEWER (SANITARY)	LF	545		545	
47	2503.515	42" STEEL FLARED END SECTION	EACH	1		1	
48	2503.602	CONNECT TO EXISTING STORM MANHOLE	EACH	4		4	
49	2503.602/00040	CONNECT TO EXISTING SANITARY SEWER	EACH	3		3	
50	2503.603/00045	PLUG, FILL & ABANDON PIPE	LF	75		75	
51	2503.603/01308	LINING SEWER PIPE 8"	LF	500		500	
52	2504.602/00022	RELOCATE HYDRANT & VALVE	EACH	1		1	
53	2504.602/00024	INSTALL HYDRANT & VALVE	EACH	1		1	
54	2504.602/00808	8" GATE VALVE & BOX	EACH	6		6	
55	2504.602/00812	12" BUTTERFLY VALVE & BOX	EACH		2	2	
56	2504.603	4" PVC IRRIGATION CONDUIT SDR 35	LF	325		325	
57	2504.603/01042	4" WATERMAIN DUCTILE IRON CL 52	LF	50		50	
58	2504.603/01063	6" WATERMAIN DUCTILE IRON CL 53	LF	360		360	
59	2504.603/01083	8" WATERMAIN DUCTILE IRON CL 53	LF	390		390	
60	2504.603/01123	12" WATERMAIN DUCTILE IRON CL 53	LF	1063		1063	
61	2505.602/00020	CONNECT TO EXISTING GAS MAIN	EACH	1		1	
62	2505.603/02020	2" HP POLYETHYLENE GAS MAIN	LF	235		235	
63	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 'G'	EACH	1	2	3	
64	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 48-4020	EACH	11	1	12	
65	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 60-4020	EACH	6	1	7	
66	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 72-4020	EACH	1		1	
67	2506.521	INSTALL CASTING	EACH	20	3	23	
68	2506.521	INSTALL SANITARY CASTING	EACH	1		1	
69	2506.522/00011	ADJUST FRAME & RING CASTING	EACH	6		6	
70	2506.602/00011	MANHOLE (SANITARY)	EACH	1		1	
71	2511.501	RANDOM RIPRAP CLASS IV	CYD	14		14	
72	2531.501/02120	CONCRETE CURB & GUTTER DESIGN D424	LF		355	355	
73	2531.501/02320	CONCRETE CURB & GUTTER DESIGN B624	LF	2050	520	2570	
74	2531.602/00030	INTEGRAL COLORED CONCRETE PEDESTRIAN CURB RAMP (TYPE SPECIAL) PEDESTRIAN CROSSWALKS	EACH	4		4	
75	2545.523	2 INCH TWO WAY CONCRETE ENCASED DUCT	LF	270		270	
76	2545.523	2 INCH FOUR WAY CONCRETE ENCASED DUCT	LF	270		270	
77	2545.523	DIRECTIONAL BORING 2" SCHEDULE 80 PVC	LF	460		460	
78	2545.523/00053	2" NON-METALLIC CONDUIT (PVC)	LF	9092	522	9614	
79	2550.512	QUAZITE CAT. NO. PG1730BB30 ELECTRICAL HANDHOLE w/ LID OR APPROVED EQUAL	EACH	11		11	
80	2550.512	QUAZITE CAT. NO. PG4872 ELECTRICAL HANDHOLE w/ PG4872HA00 LID OR APPROVED EQUAL	EACH	2		2	
81	2550.532/11040	POWER CABLE 1 CONDUCTOR NO 4 (EQUIPMENT GROUND)	LF	2500	950	3450	
82	2550.532	POWER CABLE 1 CONDUCTOR NO 6	LF	6900	2080	8980	
83	2550.532	POWER CABLE 1 CONDUCTOR NO 8	LF	3625	3400	7025	
84	2550.532	1 CONDUCTOR 18 GA SHIELDED CABLE	LF	1825		1825	
85	2564.537/00010	INSTALL SIGN TYPE A, STOP SIGN, R1-1 (COMPLETE W/ POST)	EACH	1		1	
86	2564.537	INSTALL SIGN TYPE A, ONE WAY SIGN, R6-2R, CR (COMPLETE W/ POST)	EACH	1		1	
87	2573.502	SILT FENCE TYPE HEAVY DUTY	LF	250		250	
88	2573.530	STORM DRAIN INLET PROTECTION	EACH	40	10	50	
89	2573.540	FILTER LOG TYPE STRAW BIOROLL	LF	400		400	
90	2573.550	EROSION CONTROL SUPERVISOR	LS	1		1	
91	2573.604	ROCK CONSTRUCTION ENTRANCE	SY	1340		1340	
92	2575.501/00010	SEEDING	ACRE	4		4	
93	2575.502	SEED MIXTURE 250	LBS	450		450	

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B - PERMIT PKG & HERTZ AREA	ESTIMATED QUANTITY	RECORD QUANTITY
94	2575.505/00030	SODDING TYPE LAWN	SY	2400		2400	
95	2575.523	EROSION CONTROL BLANKET CATEGORY 2	SY	10800		10800	
96	2575.532	FERTILIZER TYPE 1 10-10-10	LBS	1600		1600	
97	2575.560	HYDRAULIC SOIL STABILIZER, TYPE 6	LBS	1675		1675	
98	2575.572	RAPID STABILIZATION METHOD 4	SY	10800		10800	
99	2582.501/01010	PAVEMENT MESSAGE (HANDICAPPED SYMBOL) PAINT	EACH	29		29	
100	2582.502	BLACK PAVEMENT MARKING	SF	475		475	
101	2582.502/11104	4" SOLID LINE WHITE-PAINT	LF	5500	8050	13550	
102	2582.502/11304	4" DOTTED LINE WHITE-PAINT	LF	1150		1150	
103	2582.502/11524	24" STOP LINE WHITE - PAINT	LF	25		25	
104	SP 38.3	INSTALL TYPE 'C' LIGHT W/ FOUNDATION	EACH	4	6	10	
105	SP 39.3	INSTALL TYPE 'A2' LIGHT W/ FOUNDATION	EACH	3		3	
	SP 40.3	RELOCATE CHECKPOINT ACCESS & CONTROL SYSTEM FOR EAST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP	EACH	1		1	
106	SP 41.3	PROVIDE & INSTALL CHECKPOINT ACCESS & CONTROL SYSTEM FOR WEST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP	EACH	1		1	
108	SP 42.3	SALVAGE GATE OPERATOR	EACH	6		6	
109	SP 43.3	SALVAGE TICKET DISPENSER	EACH	4		4	
110	SP 44.3	REMOVE LIGHT & BASE	EACH	10		10	
111	SP 45.3	WALL & SMALL POST MOUNTED LIGHT REMOVAL	EACH	10		10	
112	SP 46.3	SITE POWER ALLOWANCE	AL	1		1	
113	SP 47.3	COMMUNICATIONS ALLOWANCE	AL	1		1	
114	SP 48.3	TRAFFIC CONTROL/SIGNING ALLOWANCE	AL	1		1	
115	SP 49.3	TERMINAL BUILDING WORK	LS	1		1	
116	SP 50.3	PRIVATE UTILITY LOCATING SERVICE	LS	1		1	

ADD ALTERNATE #1: GENERAL PARKING LOT SURFACING

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B - PERMIT PKG & HERTZ AREA	ESTIMATED QUANTITY	RECORD QUANTITY
117	P-100-3.1	MOBILIZATION	LS		1	1	
118	P-104-5.1	PROJECT SURVEY AND STAKEOUT	LS		1	1	
119	2103.501/00010	BUILDING REMOVAL (CONRAC)	LS		1	1	
120	2104.501/00035	REMOVE FENCE	LF		95	95	
121	2104.501/00062	REMOVE CONCRETE CURB AND GUTTER	LF		210	210	
122	2104.505/00110	REMOVE CONCRETE PAVEMENT	SY		365	365	
123	2104.505/00120	REMOVE BITUMINOUS PAVEMENT (NOMINAL 4-8")	SY		4885	4885	
124	2104.509/00017	REMOVE UNDERGROUND TANK	LS		1	1	
125	2104.509/00019	REMOVE GAS PUMP	LS		1	1	
126	2104.513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF		675	675	
127	2105.515/00010	UNCLASSIFIED EXCAVATION	CY		990	990	
128	2105.521/00032	GRANULAR BORROW MOD 7% (CV)	CY		440	440	
129	2105.604	GEOTEXTILE FABRIC TYPE V	SY		800	800	
130	2105.607/00250	HAUL & DISPOSE OF CONTAMINATED MATERIAL	CY		100	100	
131	2211.503/00050	AGGREGATE BASE (CV) CLASS 5	CY		380	380	
132	2357.502/00010	BITUMINOUS MATERIAL FOR TACK COAT	GAL		490	490	
133	2358.501/00010	BITUMINOUS MATERIAL FOR PRIME COAT	GAL		725	725	
134	2360.501/23600	TYPE (SP12.5) WEARING COURSE MIXTURE (3,F)	TON		590	590	
135	2360.502/23600	TYPE (SP12.5) NON WEARING COURSE MIXTURE (3,F)	TON		590	590	
136	2506.521	INSTALL CASTING	EACH		1	1	
137	2531.501/02320	CONCRETE CURB & GUTTER DESIGN B624	LF		85	85	
138	2545.523/00053	2" NON-METALLIC CONDUIT (PVC)	LF		161	161	
139	2550.532/11040	POWER CABLE 1 CONDUCTOR NO 4 (EQUIPMENT GROUND)	LF		210	210	
140	2550.532	POWER CABLE 1 CONDUCTOR NO 6	LF		280	280	
141	2550.532	POWER CABLE 1 CONDUCTOR NO 8	LF		440	440	
142	2582.502/11104	4" SOLID LINE WHITE-PAINT	LF		4050	4050	
143	SP 39.3	INSTALL TYPE 'A2' LIGHT W/ FOUNDATION	EACH		2	2	
144	SP 50.3	PRIVATE UTILITY LOCATING SERVICE	LS		1	1	

ADD ALTERNATE #2: PERIMETER FENCE

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B - PERMIT PKG & HERTZ AREA	ESTIMATED QUANTITY	RECORD QUANTITY
145	2104.501/00035	REMOVE FENCE	LF	1475		1475	
146	F-162-5.3	10' CHAIN LINK FENCE W/ 3 STRANDS BARBED WIRE	LF	1450		1450	
147	F-162-5.4	14' WIDE x 10' DOUBLE LEAF MANUAL GATE	EACH	1		1	
148	F-162-5.5	PEDESTRIAN GATE 10' HEIGHT	EACH	1		1	

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
(AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>)

THE 2360 PLANT MIXED ASPHALT PAVEMENT COMBINED 2360/2350 (GYRATORY/MARSHALL DESIGN) SPECIFICATIONS FOR 2008 CONSTRUCTION SHALL APPLY. AVAILABLE AT:
<http://www.dot.state.mn.us/pre-letting/prov/order/2360-2350-combined.pdf>

THE 2009 EDITION (as supplemented January 2010) OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATION SHALL APPLY



Reynolds, Smith and Hills, Inc.

4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
218-722-1227 Fax: 218-722-1052
www.rsandh.com



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Structural Engineers:
MBJ CONSULTING ENG.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-8306

M/E/P/FP Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX:

WATER NOTES

- ALL WATER LINES, HYDRANTS, VALVES AND FITTINGS SHALL BE INSTALLED AS PER THE CITY OF DULUTH PUBLIC WORKS UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS, 2010 EDITION.
- THE CONTRACTOR SHALL VERIFY ALL QUANTITIES WITH THE ENGINEER PRIOR TO PURCHASE AND DELIVERY.
- THE CONTRACTOR SHALL COORDINATE ALL WATER OUTAGES WITH THE ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE IN WRITING. (WET TAPS PERMISSIBLE FOR CONNECTIONS TO EXISTING 8" D.I. WATERMAIN.)
- THE CONTRACTOR SHALL COORDINATE ALL VALVE OPERATIONS FOR TESTING WITH THE CITY OF ALL NEW WATER LINE AS SPECIFIED, AND INFORM THE ENGINEER OF TEST TIMES AND RESULTS.

SANITARY NOTES

- ALL SANITARY LINES AND MANHOLES SHALL BE INSTALLED AS PER THE CITY OF DULUTH PUBLIC WORKS UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS, 2010 EDITION.
- THE CONTRACTOR SHALL VERIFY ALL QUANTITIES WITH THE ENGINEER PRIOR TO PURCHASE AND DELIVERY.
- THE CONTRACTOR CAN PLACE TEMPORARY BYPASS IN EXISTING SANITARY LINE OR OFF PEAK CONNECTION WHILE REPLACING CENTER SANITARY CLAY PIPE.
- THE SANITARY LINES MARKED TEMPORARY ARE TO BE USED TILL THE OLD EXISTING TERMINAL IS REMOVED

GAS NOTES

- THE CONTRACTOR SHALL INSTALL ALL GAS MAINS AND SERVICES PER THE CITY OF DULUTH PUBLIC WORKS UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS, 2010 EDITION.
- ALL CONNECTIONS TO THE EXISTING 2" GAS MAIN SHALL BE **ADD. Gopher-INSPECTED** BY THE CITY OF DULUTH OPERATIONS.
- THE INSTALLER SHALL BE CERTIFIED BY THE CITY OF DULUTH.
- THE CONTRACTOR SHALL COORDINATE ANY OUTAGES WITH THE ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE IN WRITING.
- THE CONTRACTOR SHALL COORDINATE ALL TESTING WITH THE CITY OF ALL NEW GAS MAIN AS SPECIFIED, AND INFORM THE ENGINEER OF TEST TIMES AND RESULTS.
- CITY ENGINEERING SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF WORK AND INSPECT ALL PIPE INSTALLATION AND CONNECTIONS.
- PRIOR TO ANY EXCAVATION OF PROPOSED GRINDEN DRIVE, THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF GAS MAINS WITHIN EXCAVATION LIMITS.

DEMOLITION NOTES

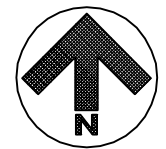
THE CONTRACTOR SHALL REMOVE ALL WATERMAIN AND SANITARY AS CALLED OUT ON SHEETS C601-C606.

THE CONTRACTOR SHALL NOT REMOVE PIPE BEFORE REPLACEMENT PIPES ARE CONNECTED AND FULLY OPERATIONAL. THIS IS AN ACTIVE AIRPORT UTILITIES SHALL BE MAINTAINED AT ALL TIMES. OUTAGES SHALL BE COORDINATED FOR OFF-PEAK TIMES.

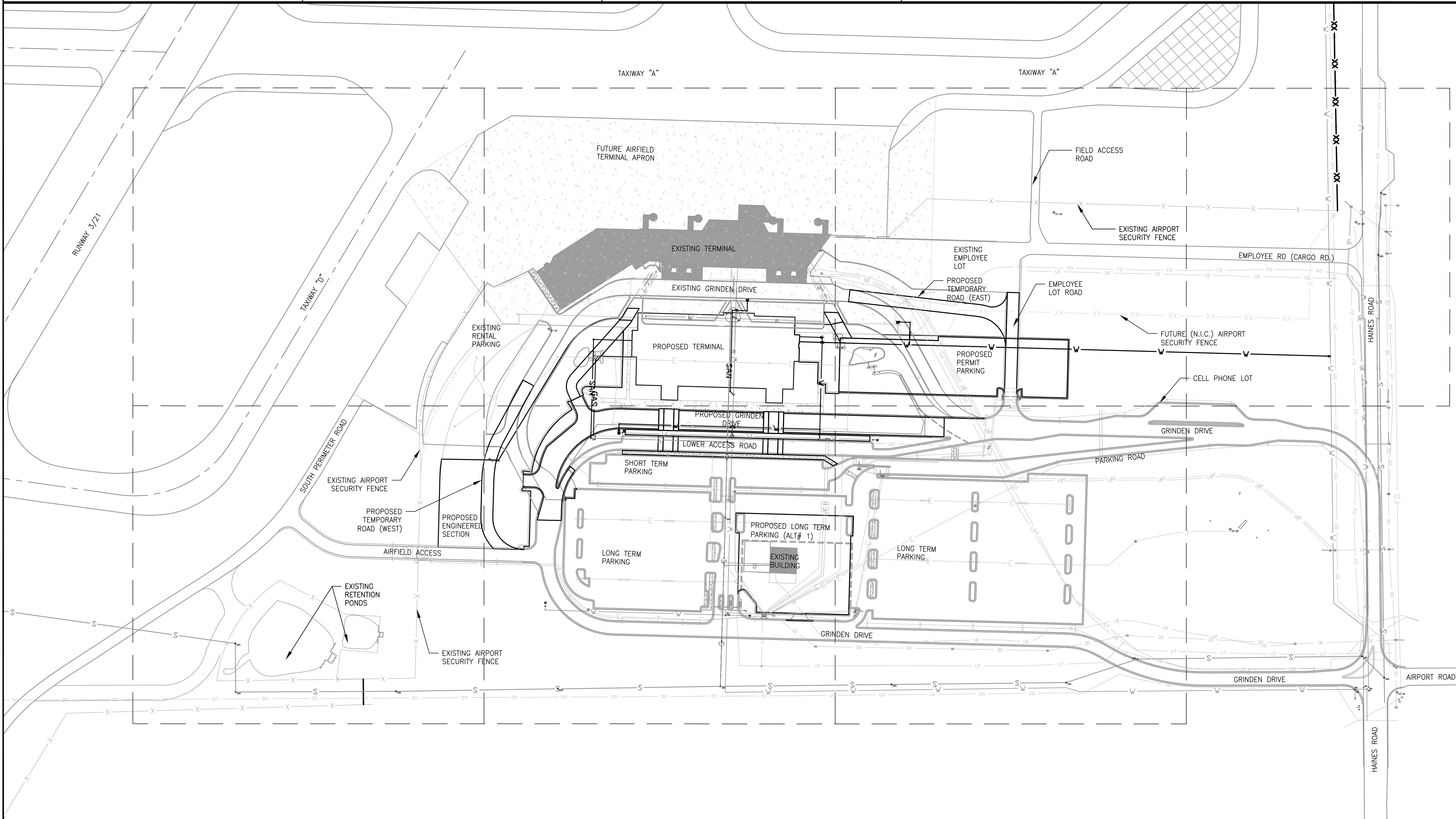
NOTE:

- PRIOR TO DIGGING THE CONTRACTOR SHALL VERIFY LOCATION OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL. 1-800-252-1166
- THE CONTRACTOR SHALL BE RESPONSIBLE TO MARK, MAINTAIN, AND REMARK IF NECESSARY, ALL PRIVATE (DAA) OWNED UTILITIES.

NORTH



0 100' 200'



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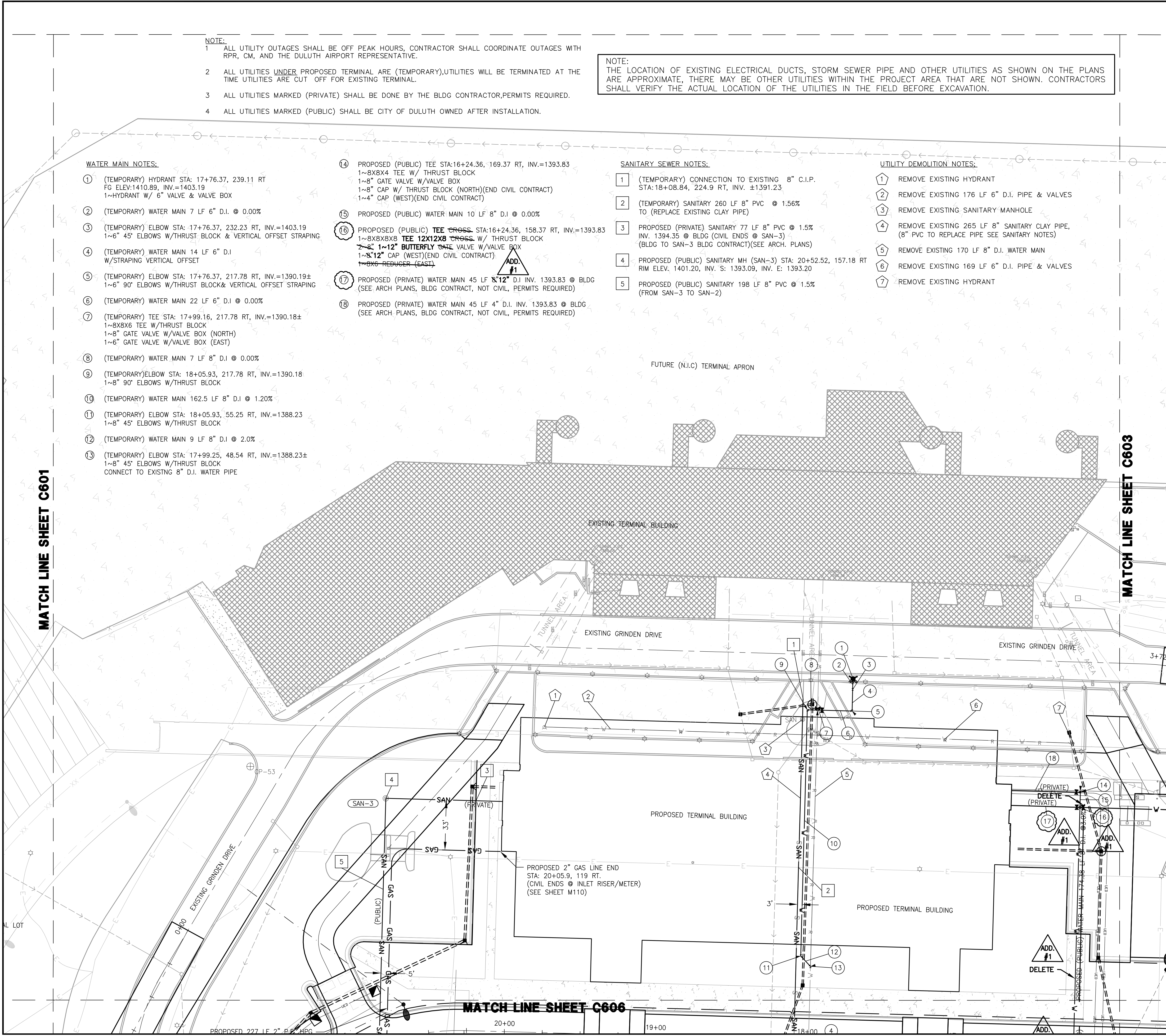
REVISIONS		
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DATE ISSUED: 05-17-2010
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DRAWN BY: LAD
DESIGNED BY: JEJ

AEP PROJECT NUMBER
213-1882-091
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SHEET TITLE

SITE UTILITY
OVERALL PLAN
AND NOTES

SHEET NUMBER
C600
BID PACKAGE 1
ISSUED FOR BID



- NOTE:
- 1 ALL UTILITY OUTAGES SHALL BE OFF PEAK HOURS, CONTRACTOR SHALL COORDINATE OUTAGES WITH RPR, CM, AND THE DULUTH AIRPORT REPRESENTATIVE.
 - 2 ALL UTILITIES UNDER PROPOSED TERMINAL ARE (TEMPORARY), UTILITIES WILL BE TERMINATED AT THE TIME UTILITIES ARE CUT OFF FOR EXISTING TERMINAL.
 - 3 ALL UTILITIES MARKED (PRIVATE) SHALL BE DONE BY THE BLDG CONTRACTOR, PERMITS REQUIRED.
 - 4 ALL UTILITIES MARKED (PUBLIC) SHALL BE CITY OF DULUTH OWNED AFTER INSTALLATION.

NOTE:
THE LOCATION OF EXISTING ELECTRICAL DUCTS, STORM SEWER PIPE AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE, THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. CONTRACTORS SHALL VERIFY THE ACTUAL LOCATION OF THE UTILITIES IN THE FIELD BEFORE EXCAVATION.

WATER MAIN NOTES:

- 1 (TEMPORARY) HYDRANT STA: 17+76.37, 239.11 RT
FG ELEV: 1410.89, INV.=1403.19
1~HYDRANT W/ 6" VALVE & VALVE BOX
- 2 (TEMPORARY) WATER MAIN 7 LF 6" D.I. @ 0.00%
- 3 (TEMPORARY) ELBOW STA: 17+76.37, 232.23 RT, INV.=1403.19
1~6" 45° ELBOWS W/THRUST BLOCK & VERTICAL OFFSET STRAPING
- 4 (TEMPORARY) WATER MAIN 14 LF 6" D.I.
W/STRAPING VERTICAL OFFSET
- 5 (TEMPORARY) ELBOW STA: 17+76.37, 217.78 RT, INV.=1390.19±
1~6" 90° ELBOWS W/THRUST BLOCK & VERTICAL OFFSET STRAPING
- 6 (TEMPORARY) WATER MAIN 22 LF 6" D.I. @ 0.00%
- 7 (TEMPORARY) TEE STA: 17+99.16, 217.78 RT, INV.=1390.18±
1~8X8X6 TEE W/THRUST BLOCK
1~8" GATE VALVE W/VALVE BOX (NORTH)
1~6" GATE VALVE W/VALVE BOX (EAST)
- 8 (TEMPORARY) WATER MAIN 7 LF 8" D.I. @ 0.00%
- 9 (TEMPORARY) ELBOW STA: 18+05.93, 217.78 RT, INV.=1390.18
1~8" 90° ELBOWS W/THRUST BLOCK
- 10 (TEMPORARY) WATER MAIN 162.5 LF 8" D.I. @ 1.20%
- 11 (TEMPORARY) ELBOW STA: 18+05.93, 55.25 RT, INV.=1388.23
1~8" 45° ELBOWS W/THRUST BLOCK
- 12 (TEMPORARY) WATER MAIN 9 LF 8" D.I. @ 2.0%
- 13 (TEMPORARY) ELBOW STA: 17+99.25, 48.54 RT, INV.=1388.23±
1~8" 45° ELBOWS W/THRUST BLOCK
CONNECT TO EXISTING 8" D.I. WATER PIPE

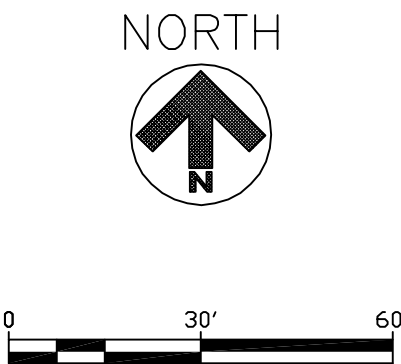
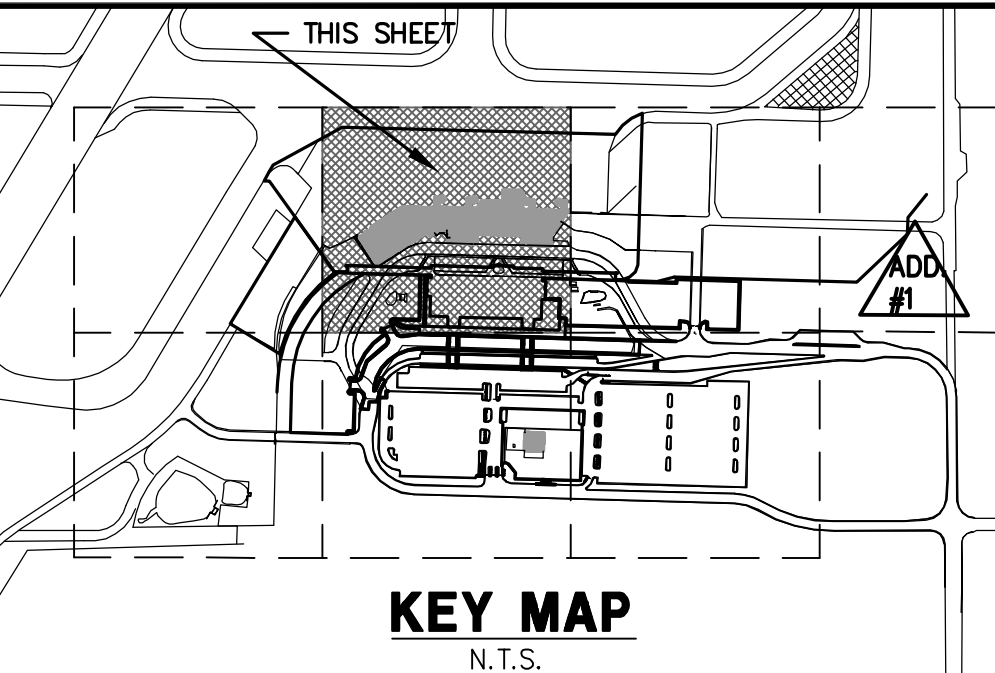
- 14 PROPOSED (PUBLIC) TEE STA: 16+24.36, 169.37 RT, INV.=1393.83
1~8X8X4 TEE W/ THRUST BLOCK
1~8" GATE VALVE W/VALVE BOX
1~8" CAP W/ THRUST BLOCK (NORTH) (END CIVIL CONTRACT)
1~4" CAP (WEST) (END CIVIL CONTRACT)
- 15 PROPOSED (PUBLIC) WATER MAIN 10 LF 8" D.I. @ 0.00%
- 16 PROPOSED (PUBLIC) TEE CROSS STA: 16+24.36, 158.37 RT, INV.=1393.83
1~8X8X8 TEE 12X12X8 CROSS W/ THRUST BLOCK
2~8" 1~12" BUTTERFLY GATE VALVE W/VALVE BOX
1~8" 12" CAP (WEST) (END CIVIL CONTRACT)
1~8X6 REDUCER (EAST)
- 17 PROPOSED (PRIVATE) WATER MAIN 45 LF 8" D.I. INV. 1393.83 @ BLDG
(SEE ARCH PLANS, BLDG CONTRACT, NOT CIVIL, PERMITS REQUIRED)
- 18 PROPOSED (PRIVATE) WATER MAIN 45 LF 4" D.I. INV. 1393.83 @ BLDG
(SEE ARCH PLANS, BLDG CONTRACT, NOT CIVIL, PERMITS REQUIRED)

SANITARY SEWER NOTES:

- 1 (TEMPORARY) CONNECTION TO EXISTING 8" C.I.P.
STA: 18+08.84, 224.9 RT, INV. ±1391.23
- 2 (TEMPORARY) SANITARY 260 LF 8" PVC @ 1.56%
TO (REPLACE EXISTING CLAY PIPE)
- 3 PROPOSED (PRIVATE) SANITARY 77 LF 8" PVC @ 1.5%
INV. 1394.35 @ BLDG (CIVIL ENDS @ SAN-3)
(BLDG TO SAN-3 BLDG CONTRACT) (SEE ARCH. PLANS)
- 4 PROPOSED (PUBLIC) SANITARY MH (SAN-3) STA: 20+52.52, 157.18 RT
RIM ELEV. 1401.20, INV. S: 1393.09, INV. E: 1393.20
- 5 PROPOSED (PUBLIC) SANITARY 198 LF 8" PVC @ 1.5%
(FROM SAN-3 TO SAN-2)

UTILITY DEMOLITION NOTES:

- 1 REMOVE EXISTING HYDRANT
- 2 REMOVE EXISTING 176 LF 6" D.I. PIPE & VALVES
- 3 REMOVE EXISTING SANITARY MANHOLE
- 4 REMOVE EXISTING 265 LF 8" SANITARY CLAY PIPE,
(8" PVC TO REPLACE PIPE SEE SANITARY NOTES)
- 5 REMOVE EXISTING 170 LF 8" D.I. WATER MAIN
- 6 REMOVE EXISTING 169 LF 6" D.I. PIPE & VALVES
- 7 REMOVE EXISTING HYDRANT



LEGEND

- 4/C #6 THHN 600V, 1/C #4 GRD. IN CONDUIT
- 4/C #8 THHN 600V, 1/C #4 GRD. IN CONDUIT
- PROPOSED CONDUIT DUCTS
- EXISTING OVERHEAD ELECT.
- EXISTING POWER POLE
- PROPOSED ELECT. MANHOLE
- PROPOSED LIGHT POLES
- PROPOSED PHONE PEDESTAL
- PROPOSED COMM MANHOLE
- EXISTING UNDERGROUND ELECT.
- EXISTING -PRIVATE- ELECT.
- EXISTING LIGHT & POLE
- PROPOSED PHONE CABLES
- EXISTING PHONE CABLES
- EXISTING CATV CABLES
- EXISTING FIBER OPTIC CABLE
- EXISTING PARKING GATE
- EXISTING ELECT. MANHOLE
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- EXISTING SANITARY
- PROPOSED SANITARY
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- EXISTING GAS LINE
- PROPOSED GAS LINE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED STORM PIPE
- PROPOSED EDGE DRAINS
- EXISTING STORM PIPE

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DULUTH, MN**

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REVISIONS

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DRAWN BY: LAD

DESIGNED BY: JEH

**AEP PROJECT NUMBER
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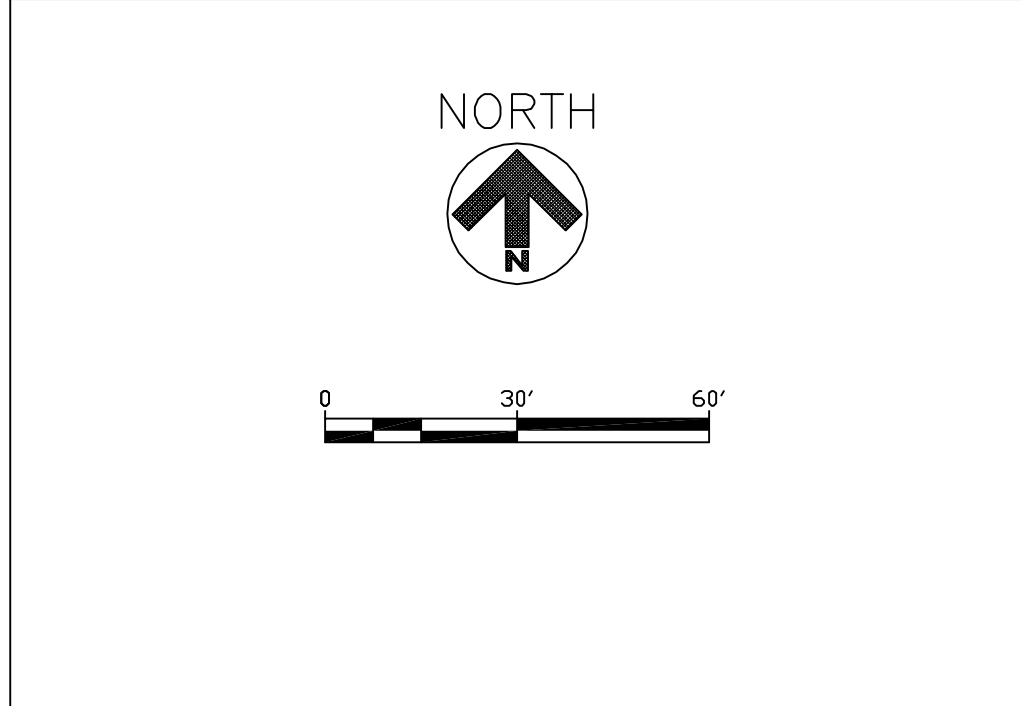
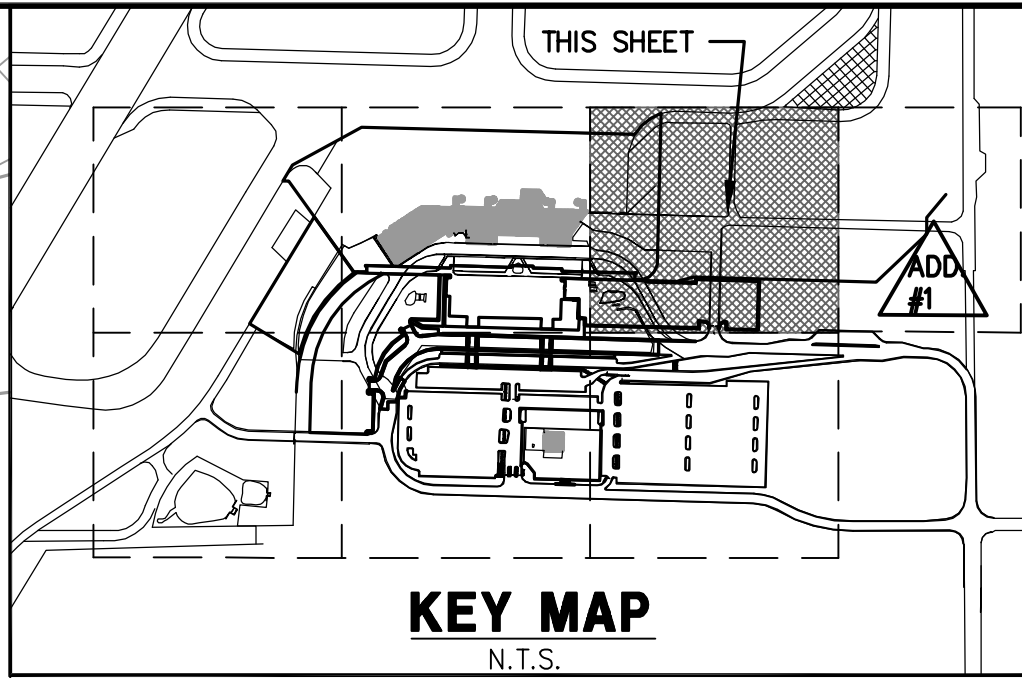
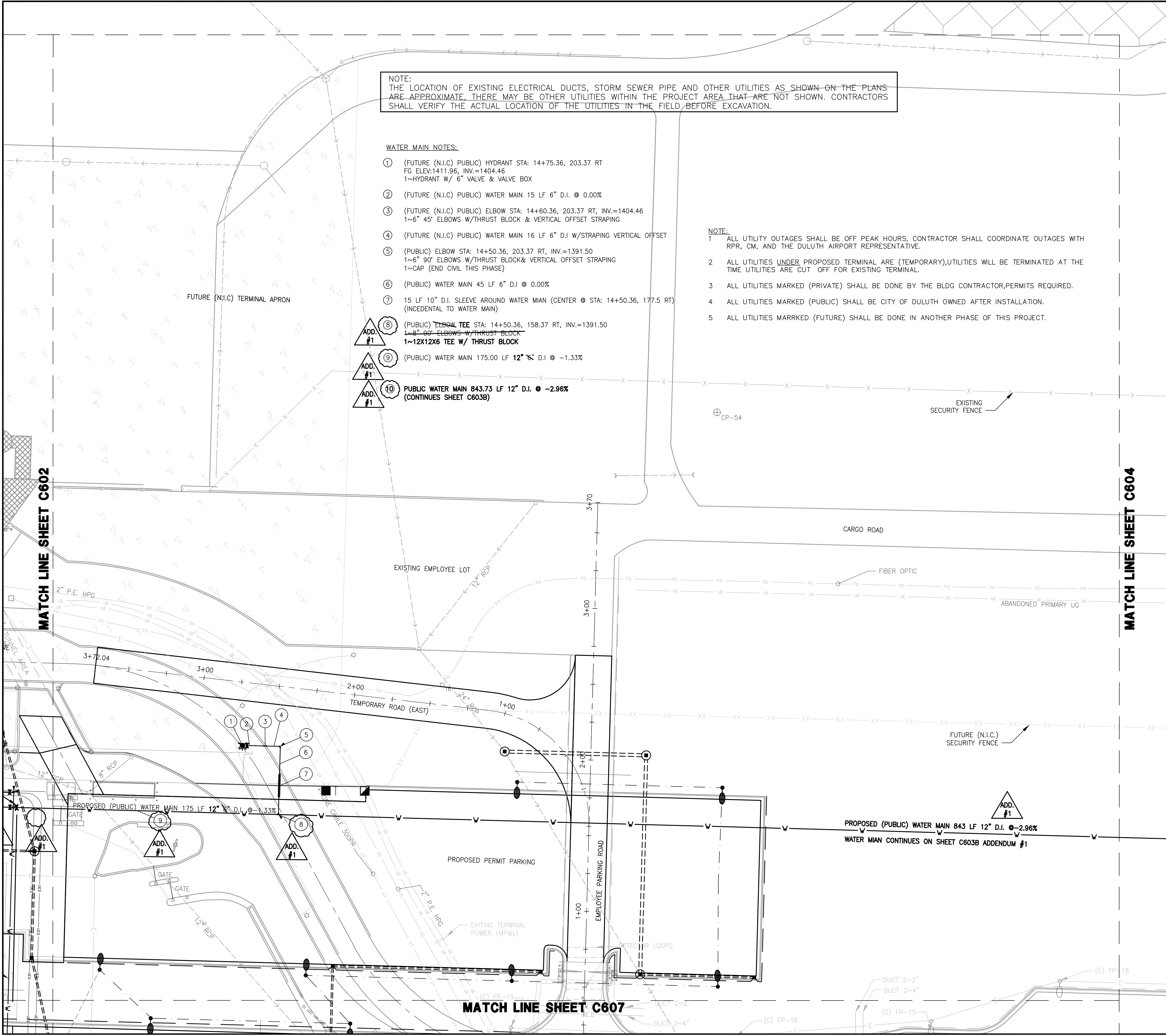
SHEET TITLE

**SITE UTILITY PLAN
(SHEET 2 OF 7)**

SHEET NUMBER

C602

**BID PACKAGE 1
ISSUED FOR BID**



LEGEND		
---	4/C #6 THHN 600V, 1/C #4 GRD. IN CONDUIT	
---	4/C #8 THHN 600V, 1/C #4 GRD. IN CONDUIT	
---	PROPOSED CONDUIT DUCTS	
---	EXISTING OVERHEAD ELECT.	
⊕	EXISTING POWER POLE	
⬢	PROPOSED ELECT. MANHOLE	
⬢	PROPOSED LIGHT POLES	
⬢	PROPOSED PHONE PEDESTAL	
⬢	PROPOSED COMM MANHOLE	
---	EXISTING UNDERGROUND ELECT.	
---	EXISTING -PRIVATE- ELECT.	
⬢	EXISTING LIGHT & POLE	
---	PROPOSED PHONE CABLES	
---	EXISTING PHONE CABLES	
---	EXISTING CATV CABLES	
---	EXISTING FIBER OPTIC CABLE	
---	EXISTING PARKING GATE	
⊕	EXISTING ELECT. MANHOLE	
---	PROPOSED WATERMAIN	
---	EXISTING WATERMAIN	
---	EXISTING SANITARY	
---	PROPOSED SANITARY	
⊕	EXISTING SANITARY MANHOLE	
⊕	PROPOSED SANITARY MANHOLE	
---	EXISTING GAS LINE	
---	PROPOSED GAS LINE	
⊕	EXISTING HYDRANT	
⊕	PROPOSED HYDRANT	
⊕	PROPOSED WATER VALVE	
⊕	EXISTING WATER VALVE	
---	PROPOSED STORM PIPE	
---	PROPOSED EDGE DRAINS	
---	EXISTING STORM PIPE	

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Interior Architects:
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TEL: (218) 724-8578 / FAX: (218) 724-8117

Structural Engineers:
MBJ CONSULTING ENG.
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TEL: (218) 722-1056 / FAX: (218) 722-9306

M/E/P/FP Engineers:
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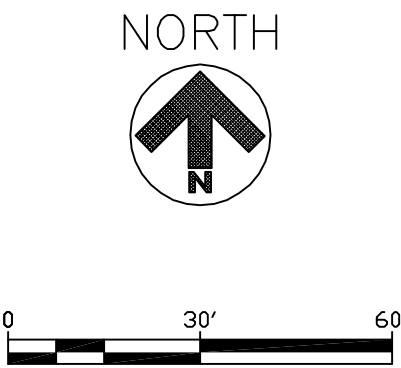
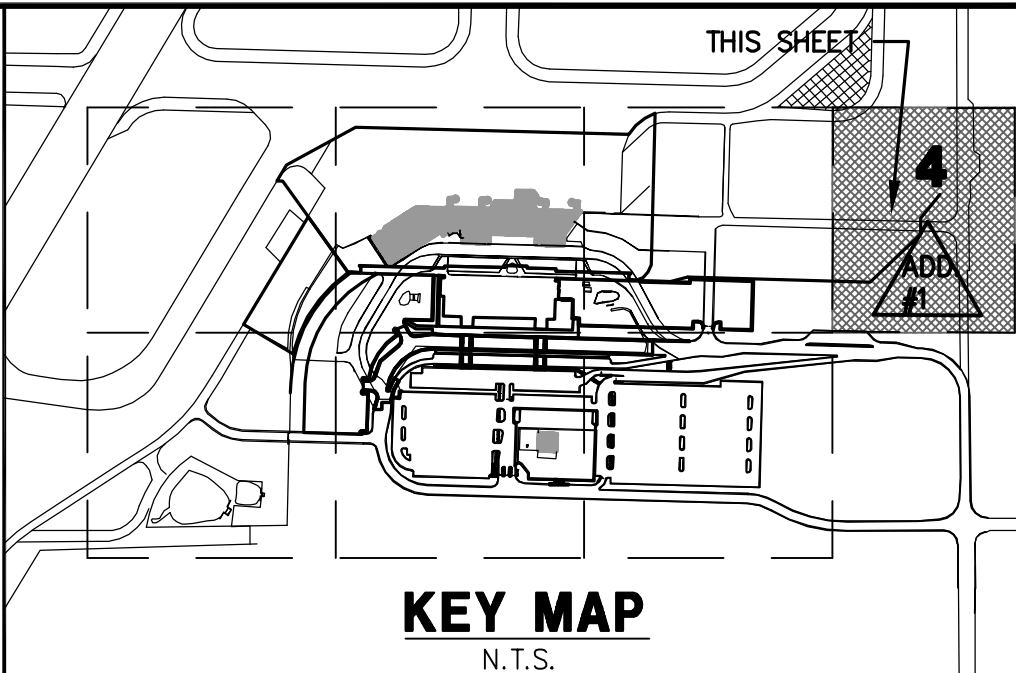
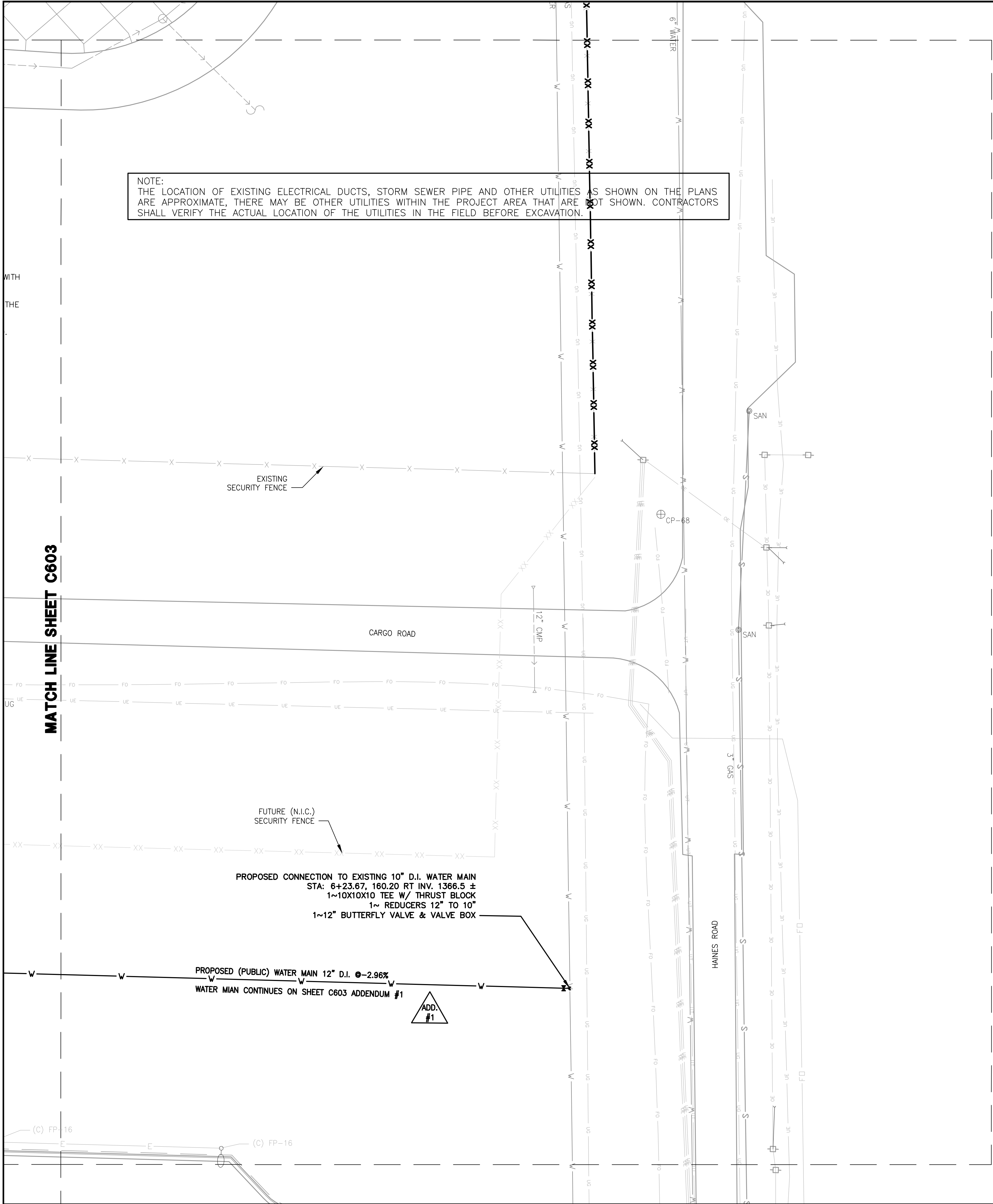
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SHEET TITLE

**SITE UTILITY PLAN
(SHEET 3 OF 7)**

SHEET NUMBER
C603

**BID PACKAGE 1
ISSUED FOR BID**



LEGEND

- 4/C #6 THHN 600V, 1/C #4 GRD. IN CONDUIT
- 4/C #8 THHN 600V, 1/C #4 GRD. IN CONDUIT
- PROPOSED CONDUIT DUCTS
- EXISTING OVERHEAD ELECT.
- EXISTING POWER POLE
- PROPOSED ELECT. MANHOLE
- PROPOSED LIGHT POLES
- PROPOSED PHONE PEDESTAL
- PROPOSED COMM MANHOLE
- EXISTING UNDERGROUND ELECT.
- EXISTING -PRIVATE- ELECT.
- EXISTING LIGHT & POLE
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- EXISTING PHONE CABLES
- EXISTING CATV CABLES
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- EXISTING ELECT. MANHOLE
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- EXISTING WATERMAIN
- EXISTING SANITARY
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- PROPOSED SANITARY MANHOLE
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SHEET TITLE

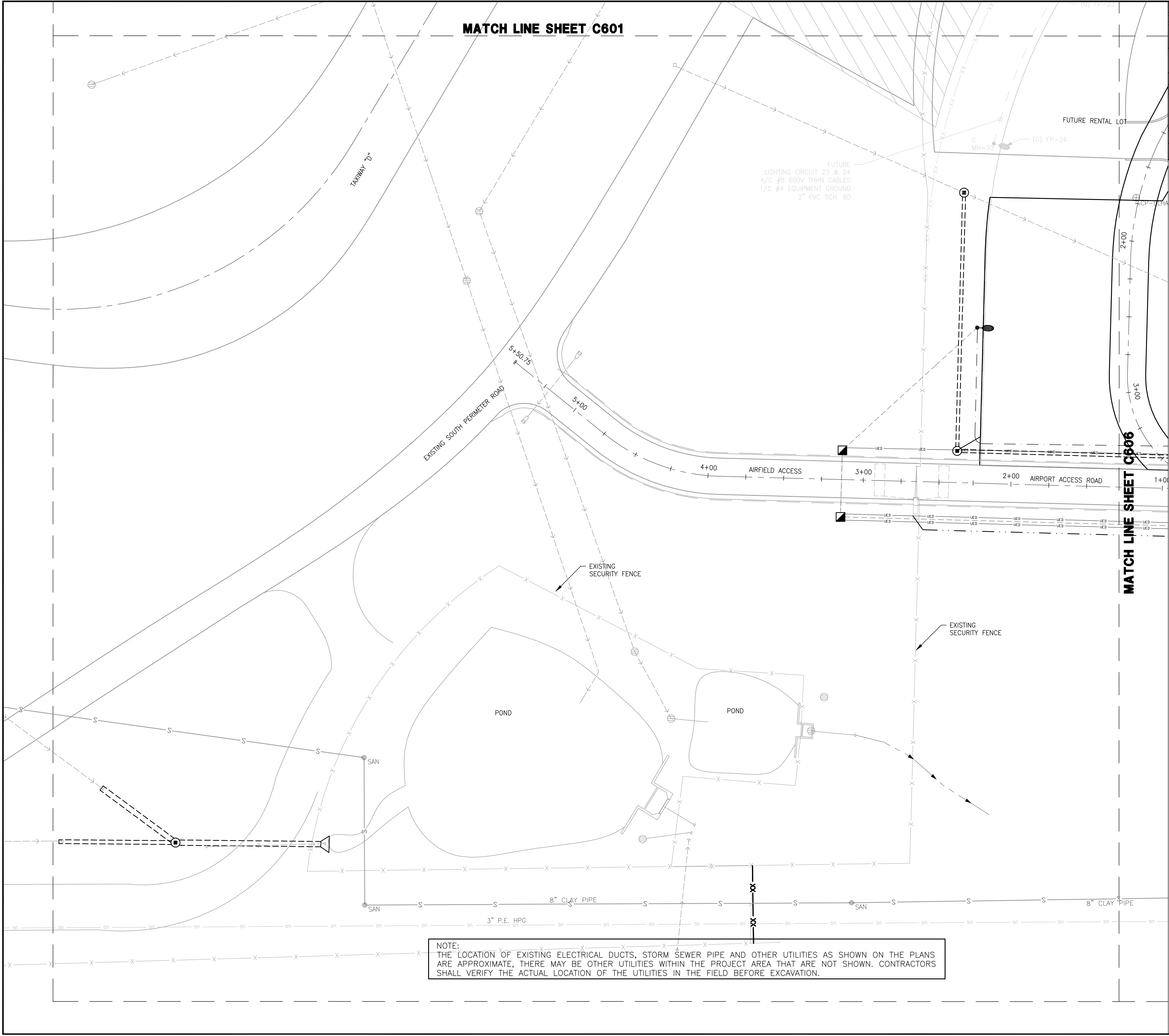
**SITE UTILITY
PLAN
(SHEET 4 OF 7)**

SHEET NUMBER

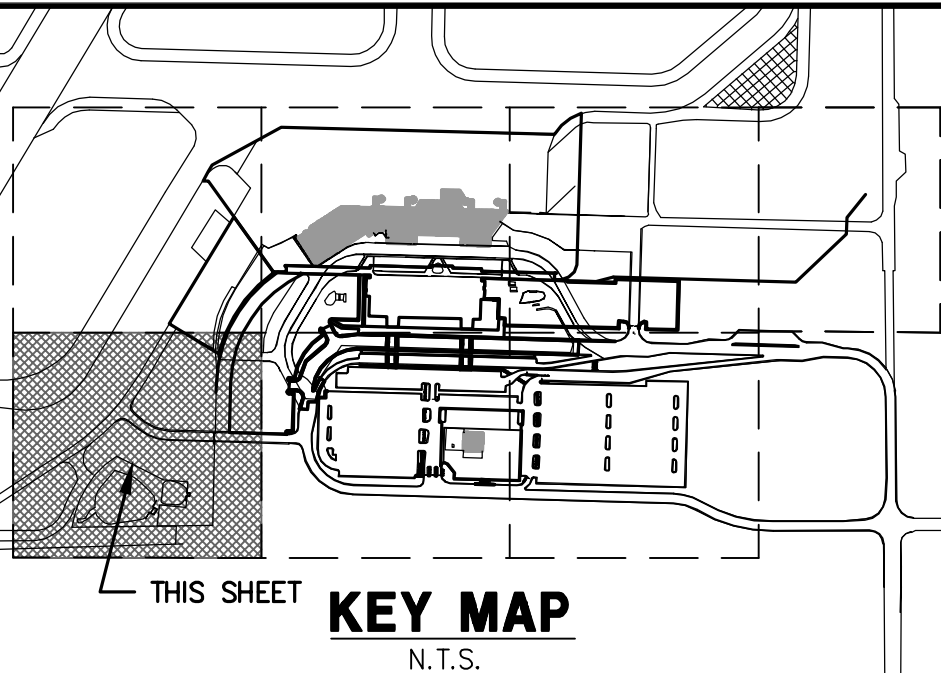
C604

**BID PACKAGE 1
ISSUED FOR BID**

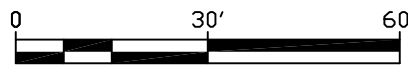
MATCH LINE SHEET C601



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NORTH



LEGEND

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- EXISTING WATERMAIN
- EXISTING SANITARY
- PROPOSED SANITARY
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- EXISTING GAS LINE
- PROPOSED GAS LINE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED STORM PIPE
- PROPOSED EDGE DRAINS
- EXISTING STORM PIPE

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213-1882-091**

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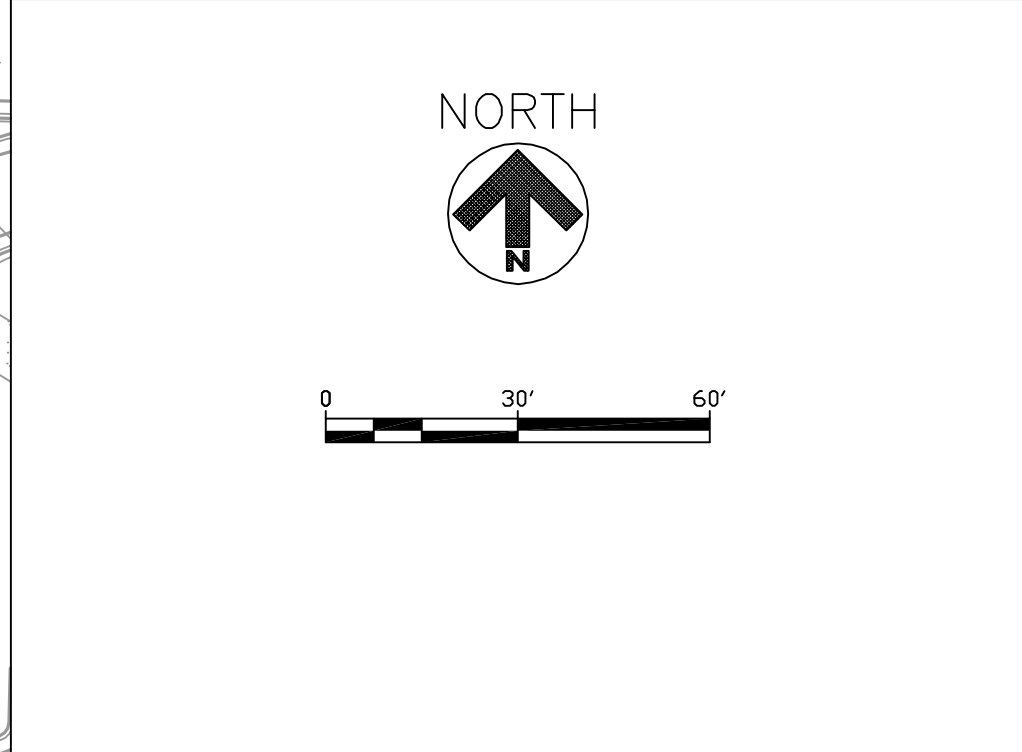
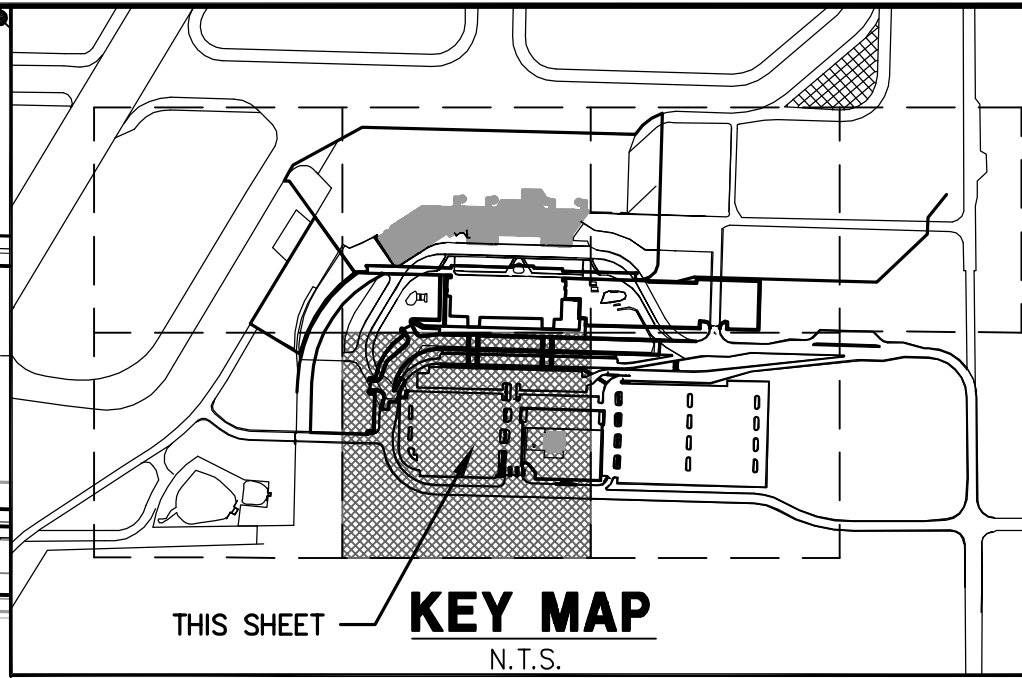
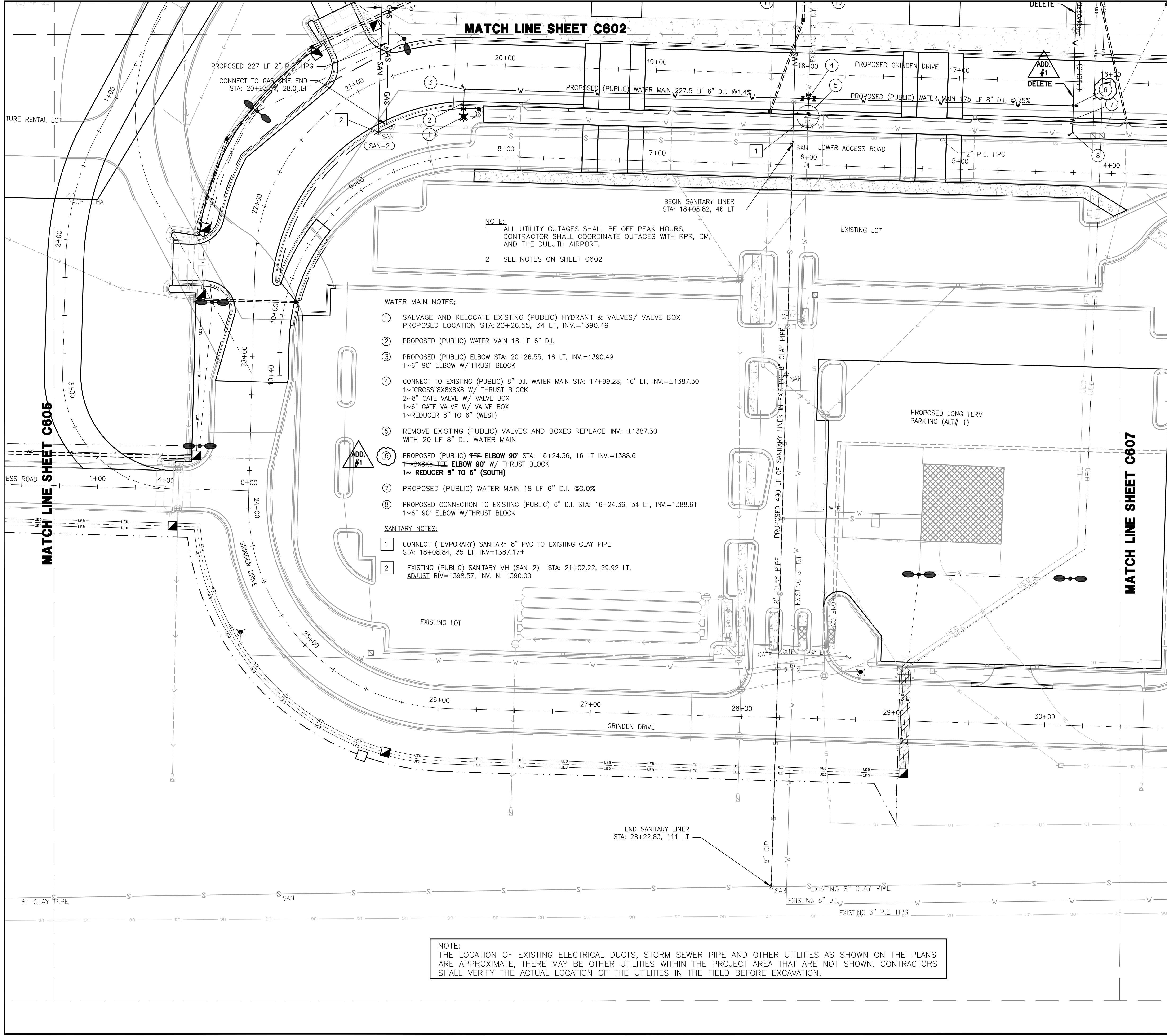
SHEET TITLE

**SITE UTILITY
PLAN
(SHEET 5 OF 7)**

SHEET NUMBER

C605

**BID PACKAGE 1
ISSUED FOR BID**



LEGEND		
---	4/C #6 THHN 600V, 1/C #4 GRD. IN CONDUIT	
---	4/C #8 THHN 600V, 1/C #4 GRD. IN CONDUIT	
---	PROPOSED CONDUIT DUCTS	
---	EXISTING OVERHEAD ELECT.	
⊕	EXISTING POWER POLE	
⬢	PROPOSED ELECT. MANHOLE	
⬢	PROPOSED LIGHT POLES	
⬢	PROPOSED PHONE PEDESTAL	
⬢	PROPOSED COMM MANHOLE	
---	EXISTING UNDERGROUND ELECT.	
---	EXISTING -PRIVATE- ELECT.	
⊙	EXISTING LIGHT & POLE	
---	PROPOSED PHONE CABLES	
---	EXISTING PHONE CABLES	
---	EXISTING CATV CABLES	
---	EXISTING FIBER OPTIC CABLE	
---	EXISTING PARKING GATE	
⊕	EXISTING ELECT. MANHOLE	
---	PROPOSED WATERMAIN	
---	EXISTING WATERMAIN	
---	EXISTING SANITARY	
---	PROPOSED SANITARY	
⊕	EXISTING SANITARY MANHOLE	
⊕	PROPOSED SANITARY MANHOLE	
---	EXISTING GAS LINE	
---	PROPOSED GAS LINE	
⊕	EXISTING HYDRANT	
⊕	PROPOSED HYDRANT	
⊕	PROPOSED WATER VALVE	
⊕	EXISTING WATER VALVE	
=====	PROPOSED STORM PIPE	
---	PROPOSED EDGE DRAINS	
---	EXISTING STORM PIPE	

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DULUTH AIRPORT AUTHORITY

**DULUTH INTERNATIONAL AIRPORT
DULUTH, MN**

NEW TERMINAL DESIGN

CONSULTANTS

Interior Architects:
SJA ARCHITECTS
11 E Superior Street Suite 340, Duluth MN 55802
TEL: (218) 724-8576 / FAX: (218) 724-8717

Structural Engineers:
MBJ CONSULTING ENG.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-9306

M/E/P/FP Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

Baggage Handling Systems Consultants:
BNP ASSOCIATES INC.
101 East Ridge Office Park, Suite 103, Danbury CT 06810
TEL: (203) 792-3000 / FAX: (203) 792-4900

Landscaping Consultants:
APPOLD DESIGN
2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

REVISIONS		
NO.	DESCRIPTION	DATE
ADD #1	ADDENDUM # 1	
1	04/28/2010	

DATE ISSUED: 05-17-2010
REVIEWED BY: CEP
DRAWN BY: LAD
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-091

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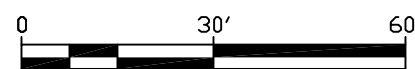
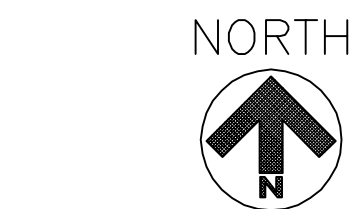
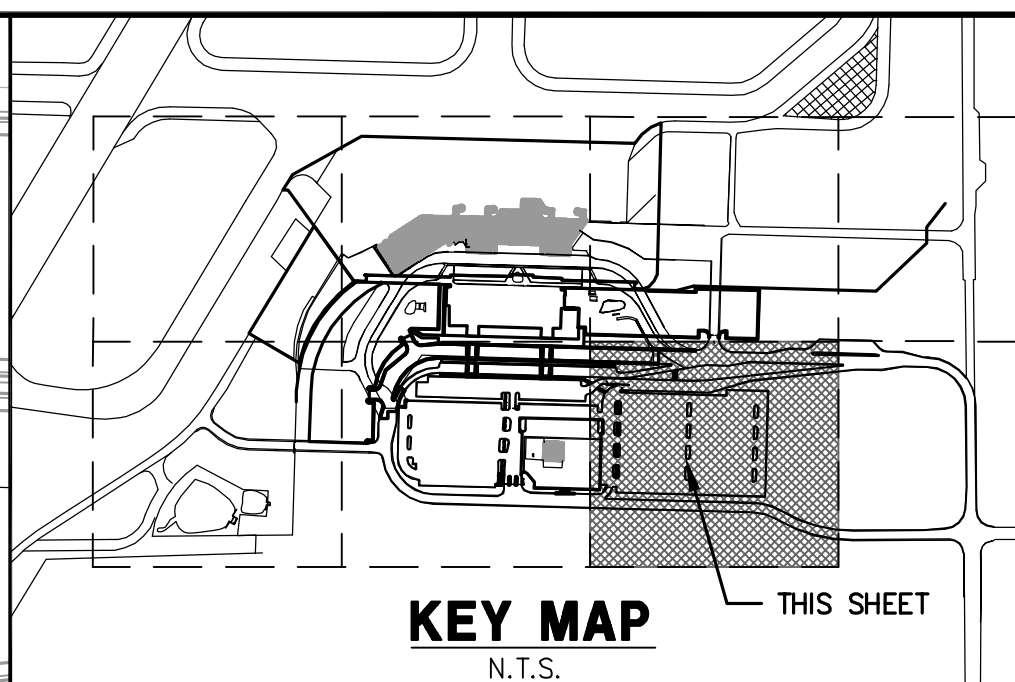
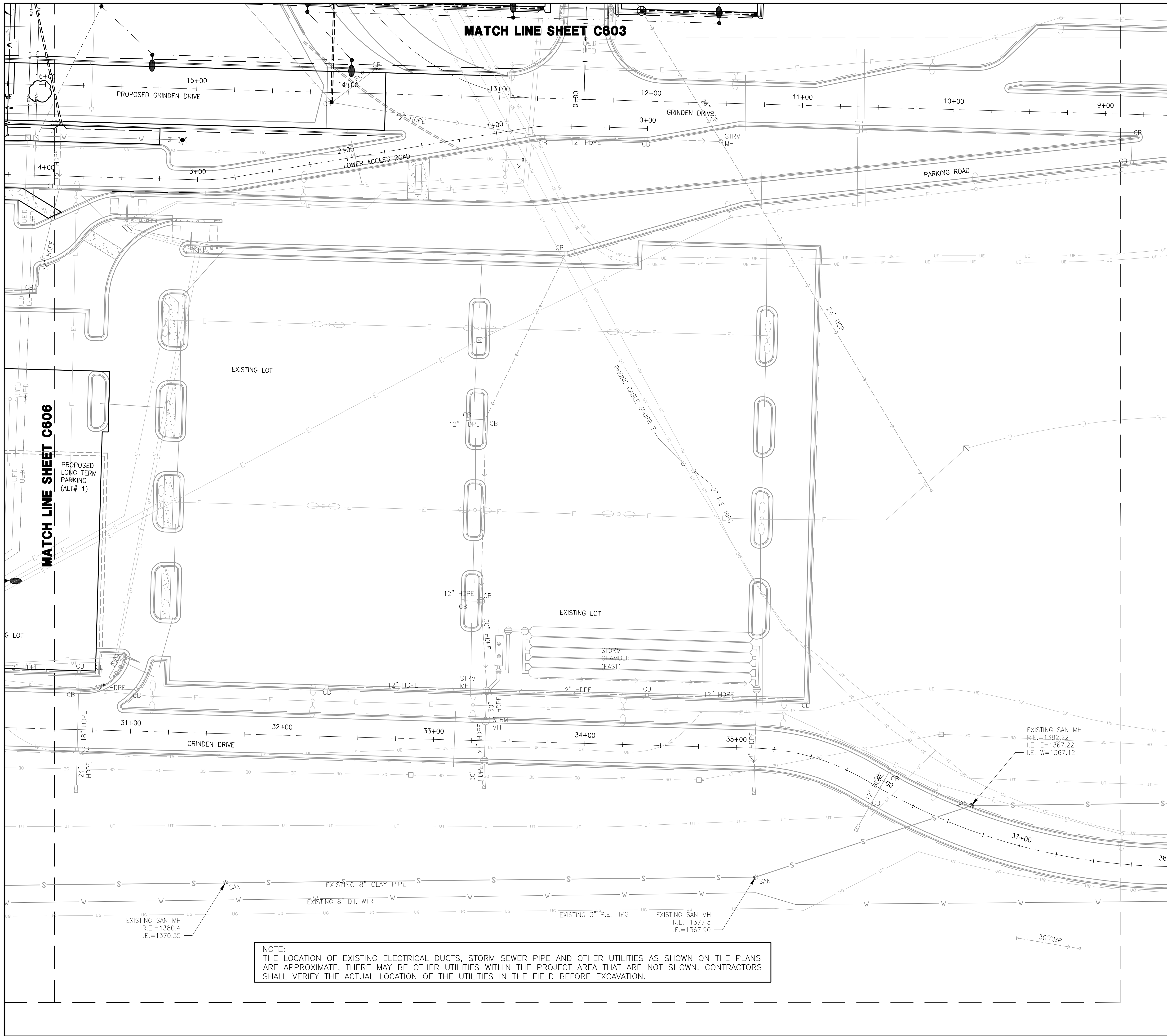
SHEET TITLE

**SITE UTILITY PLAN
(SHEET 6 OF 7)**

SHEET NUMBER
C606

**BID PACKAGE 1
ISSUED FOR BID**

MATCH LINE SHEET C603



LEGEND

- 4\"/>
- 4\"/>
- PROPOSED CONDUIT DUCTS
- EXISTING OVERHEAD ELECT.
- EXISTING POWER POLE
- PROPOSED ELECT. MANHOLE
- PROPOSED LIGHT POLES
- PROPOSED PHONE PEDESTAL
- PROPOSED COMM MANHOLE
- EXISTING UNDERGROUND ELECT.
- EXISTING -PRIVATE- ELECT.
- EXISTING LIGHT & POLE
- PROPOSED PHONE CABLES
- EXISTING PHONE CABLES
- EXISTING CATV CABLES
- EXISTING FIBER OPTIC CABLE
- EXISTING PARKING GATE
- EXISTING ELECT. MANHOLE
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- EXISTING SANITARY
- PROPOSED SANITARY
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- EXISTING GAS LINE
- PROPOSED GAS LINE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- PROPOSED STORM PIPE
- PROPOSED EDGE DRAINS
- EXISTING STORM PIPE

NOTE:
THE LOCATION OF EXISTING ELECTRICAL DUCTS, STORM SEWER PIPE AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE, THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. CONTRACTORS SHALL VERIFY THE ACTUAL LOCATION OF THE UTILITIES IN THE FIELD BEFORE EXCAVATION.

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ME/PEP Engineers:
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TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE
ADD #1	ADDENDUM # 1	
#1	04/28/2010	

DATE ISSUED: 05-17-2010

REVIEWED BY: CEP

DRAWN BY: LAD

DESIGNED BY: JEJ

**AEP PROJECT NUMBER
213-1882-091**

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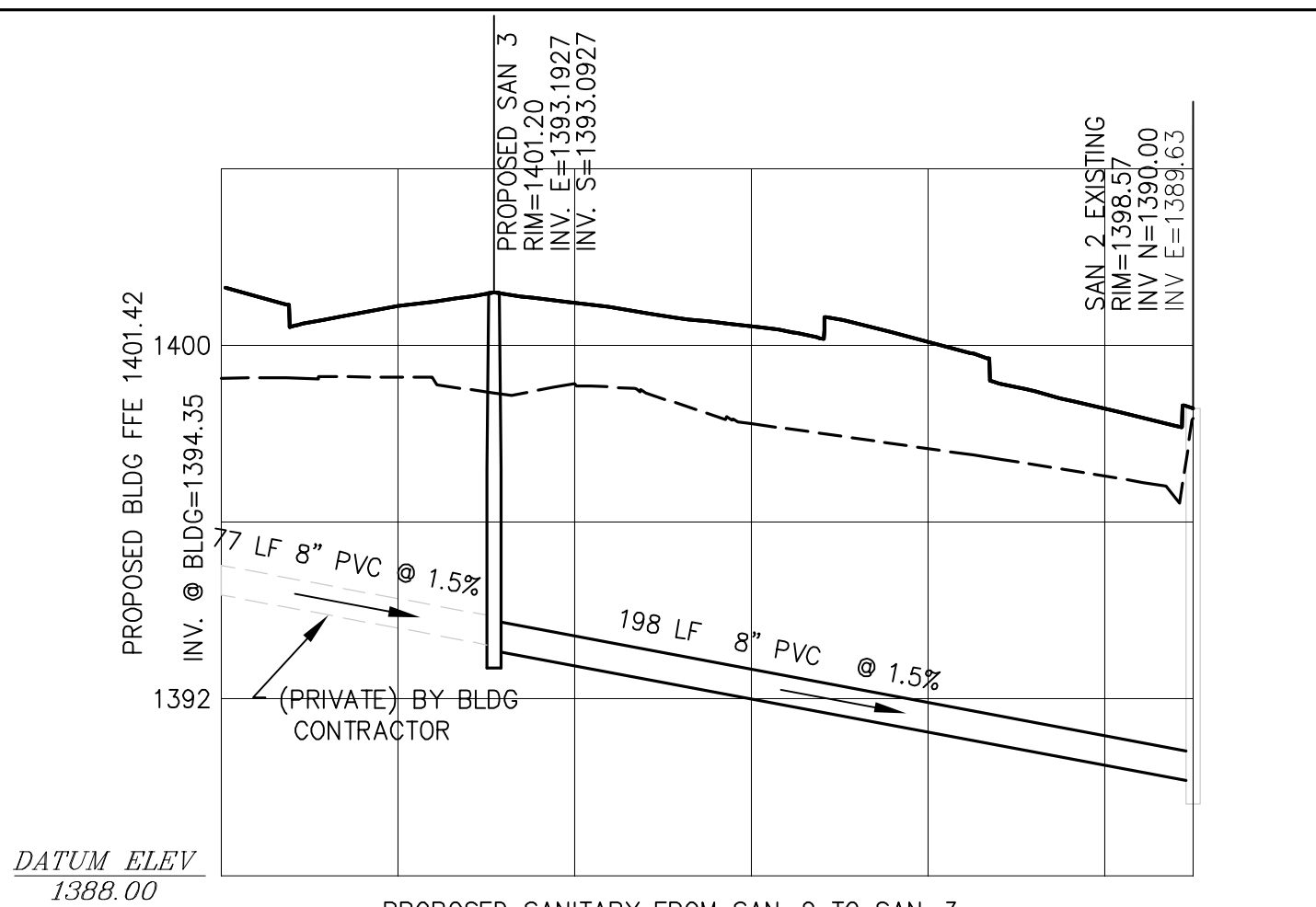
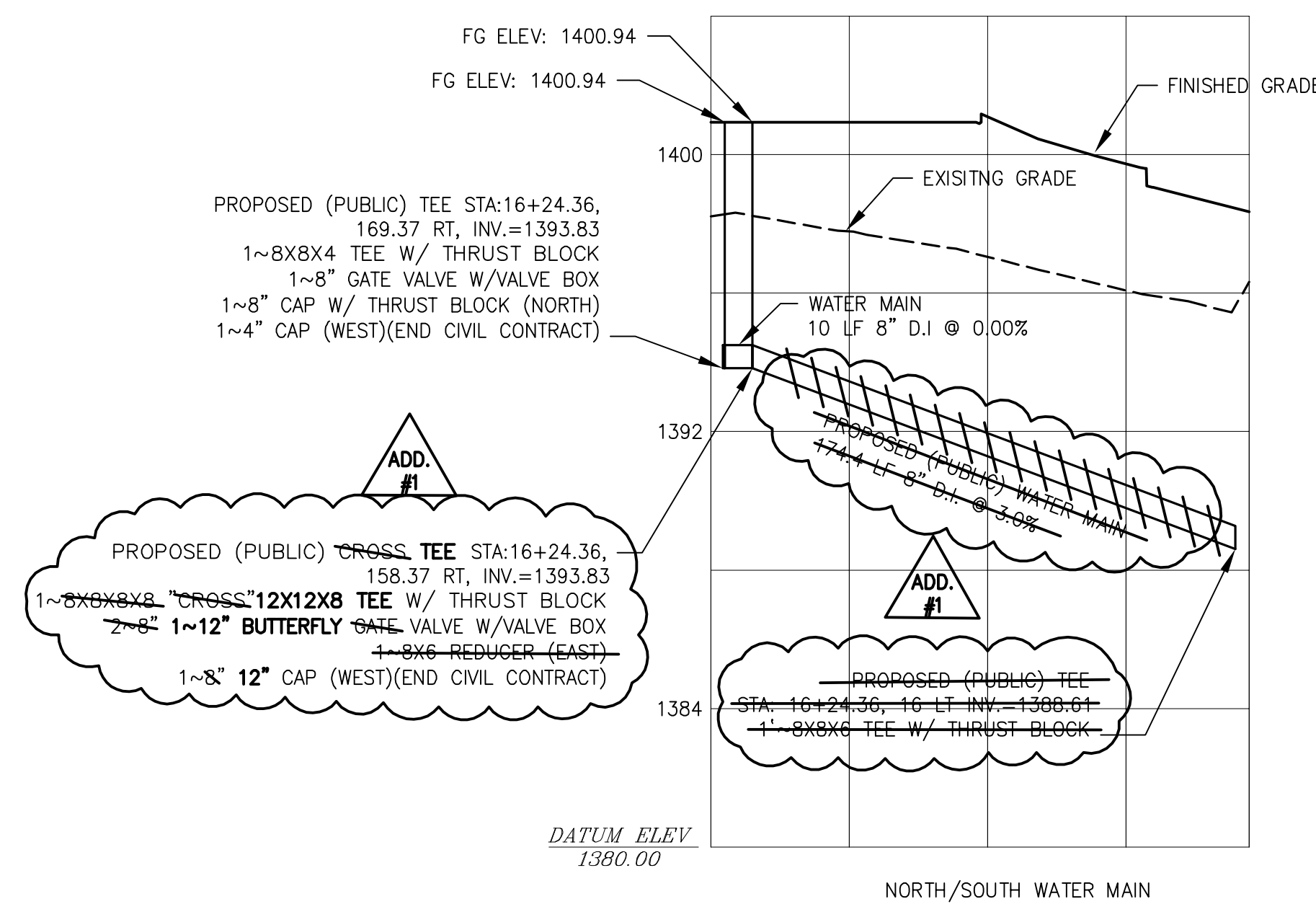
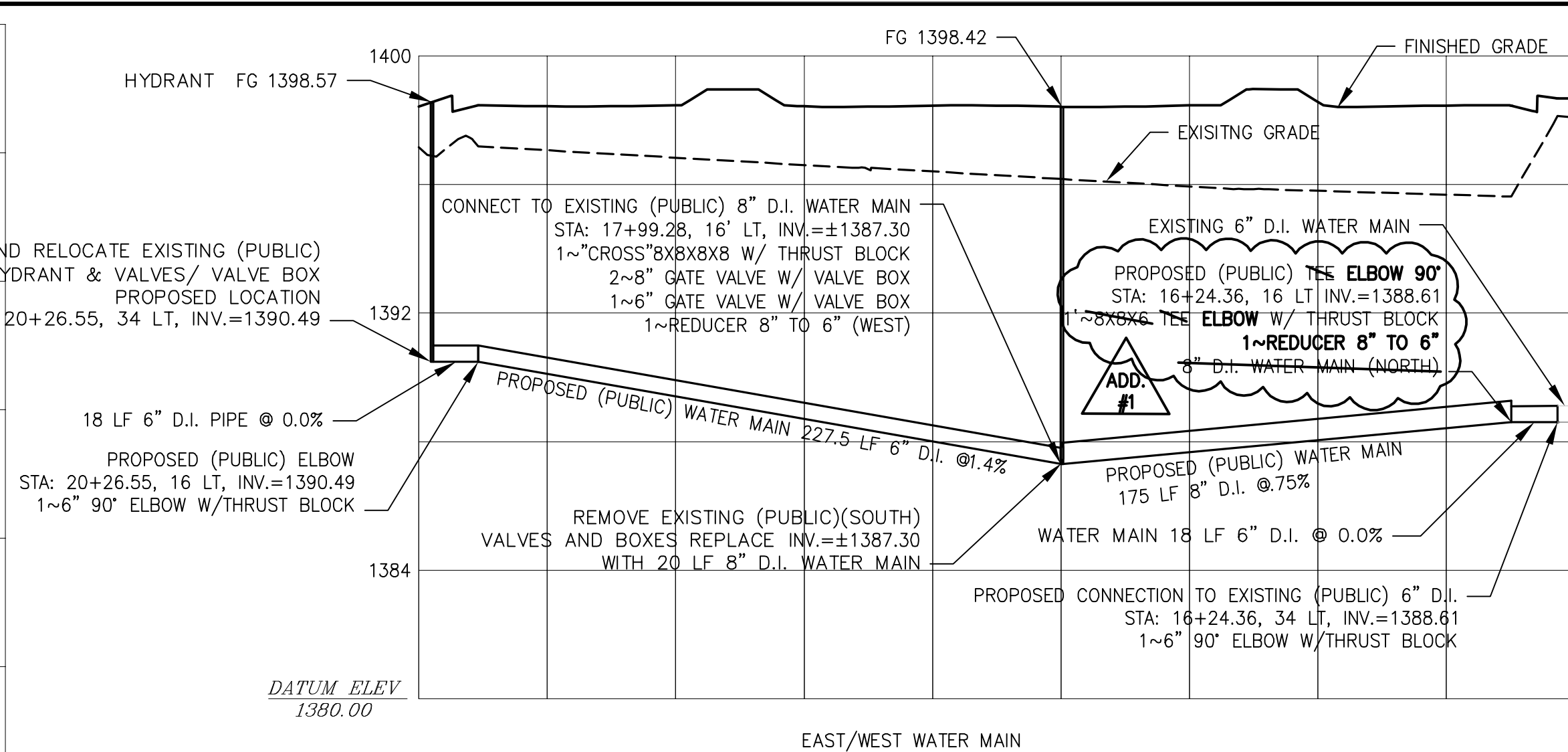
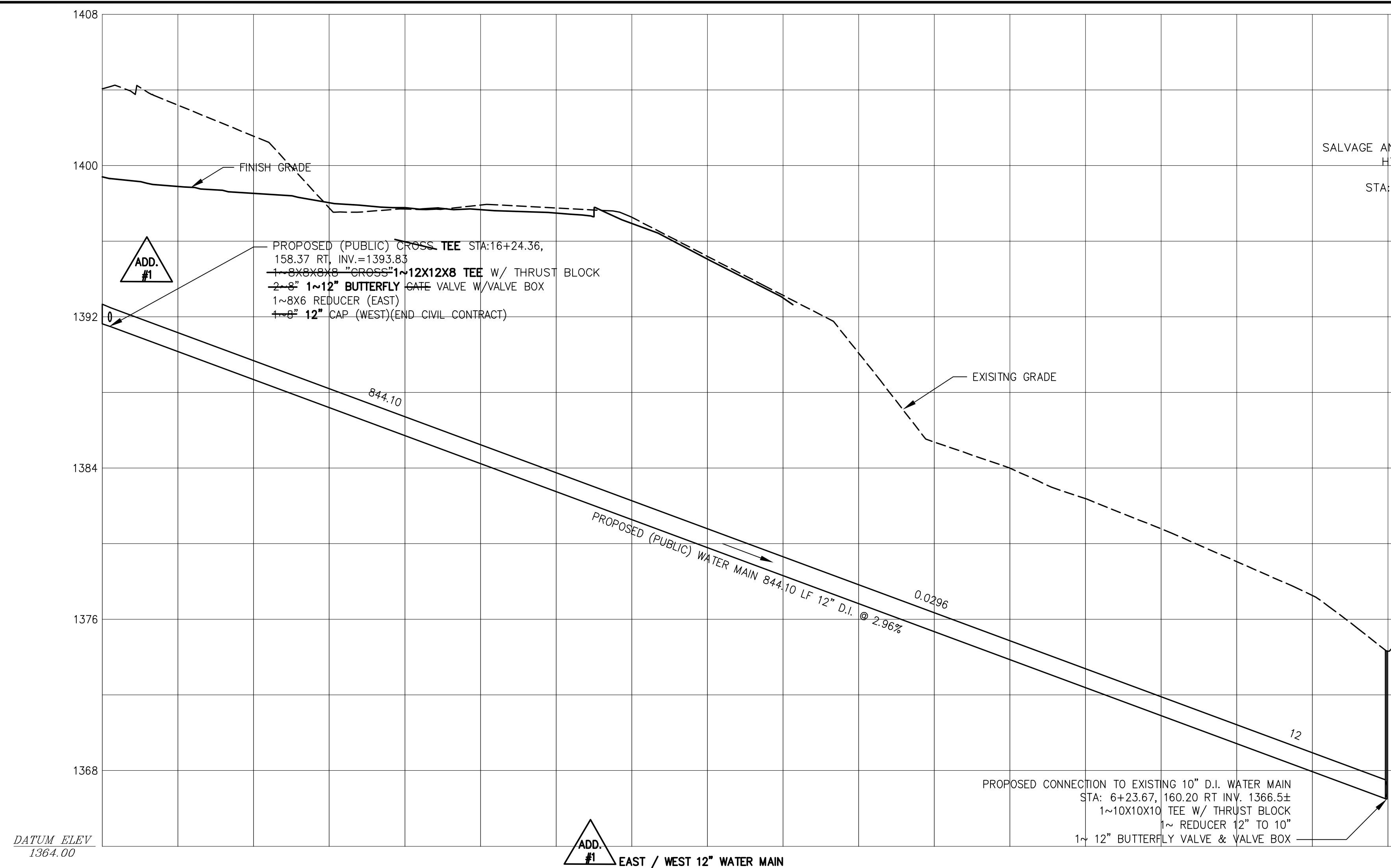
SHEET TITLE

**SITE UTILITY
PLAN
(SHEET 7 OF 7)**

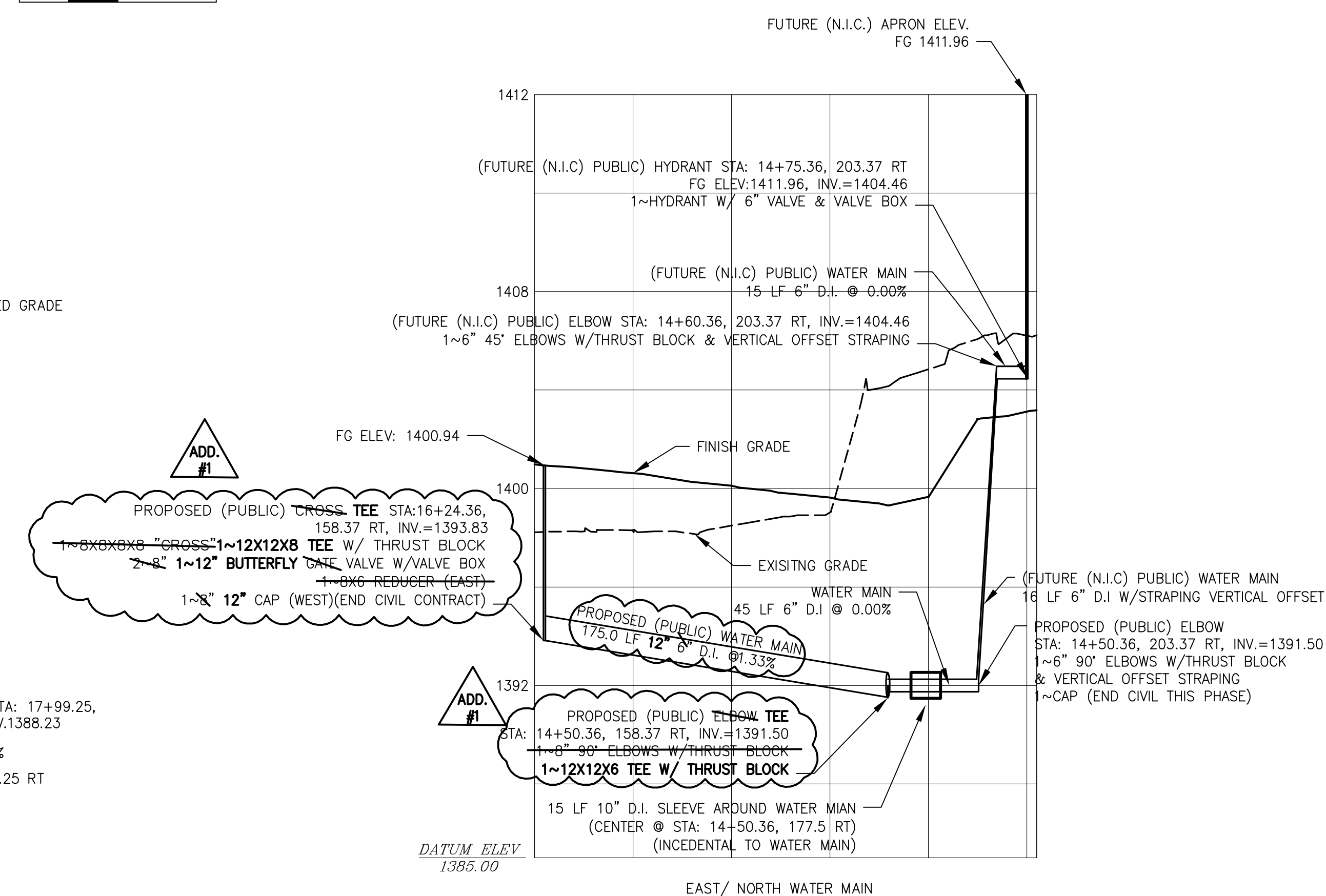
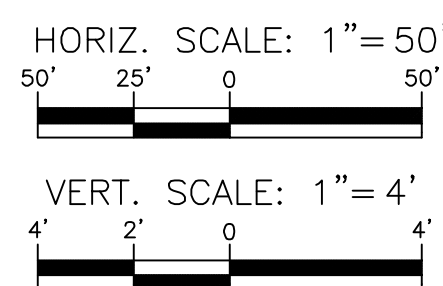
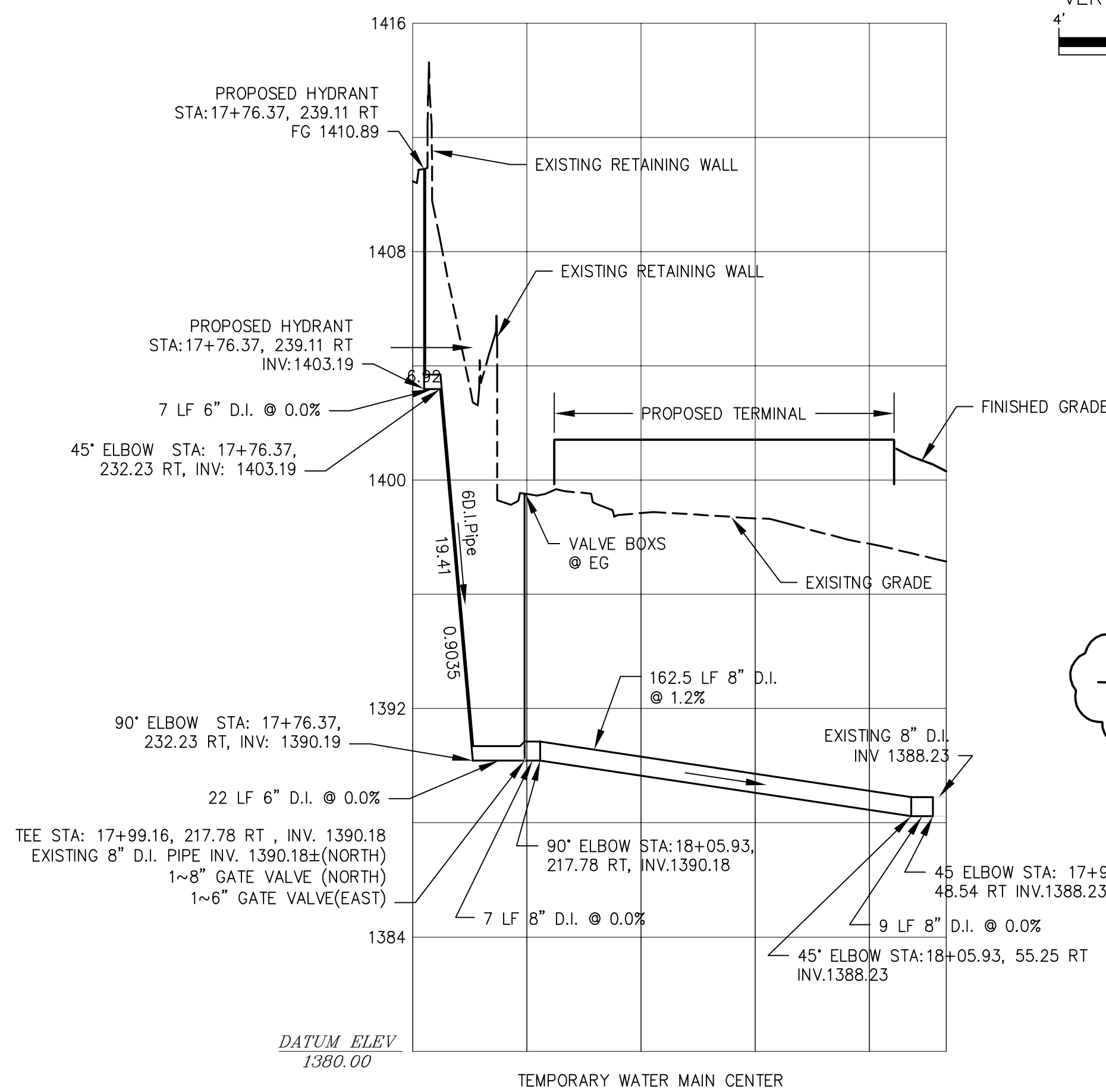
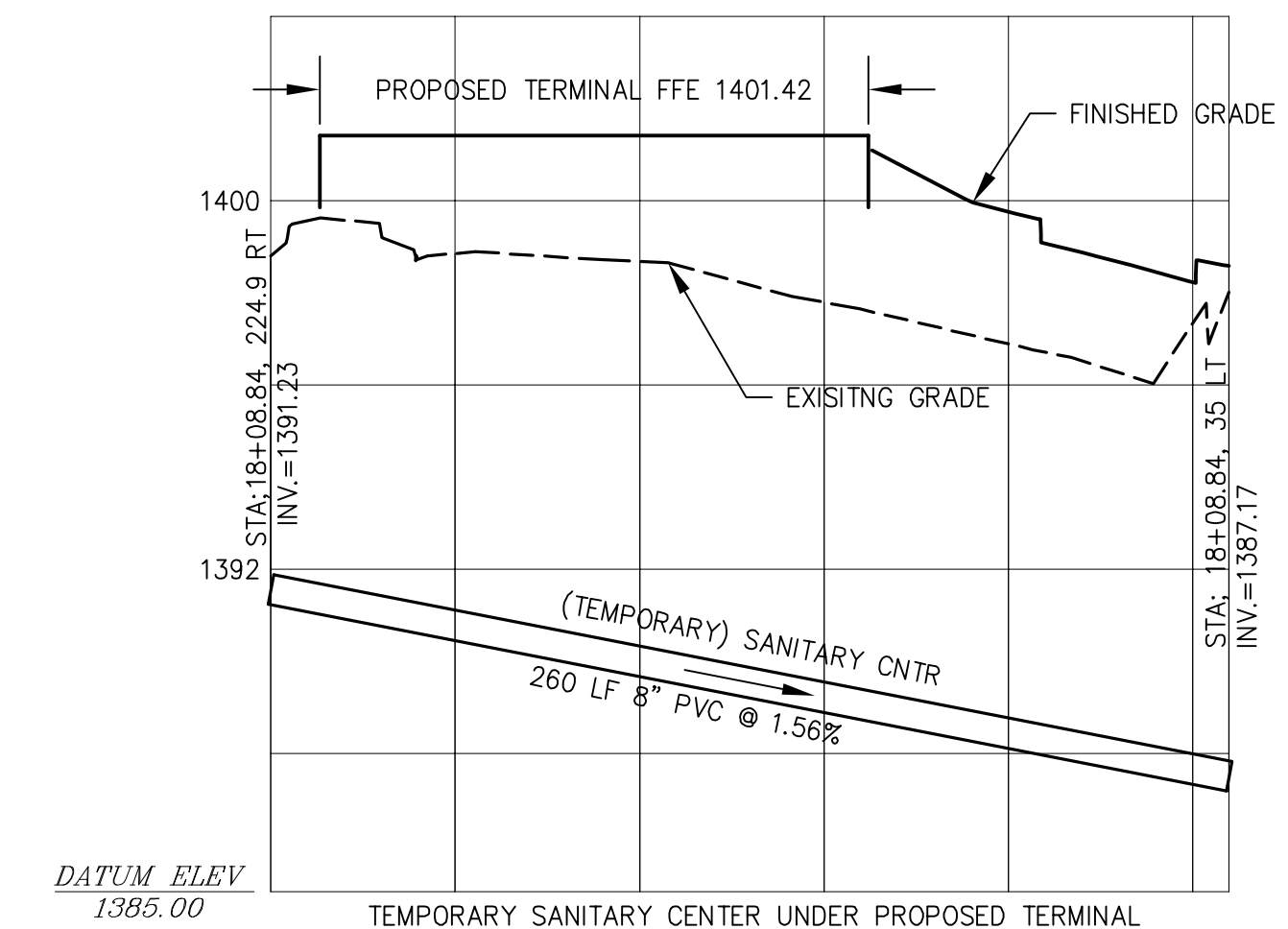
SHEET NUMBER

C607

**BID PACKAGE 1
ISSUED FOR BID**



NOTE:
 PROVIDE TEMPORARY BYPASS AS NECESSARY FOR CONSTRUCTION OF SANITARY WORK SHALL BE CONSIDERED INCIDENTAL.



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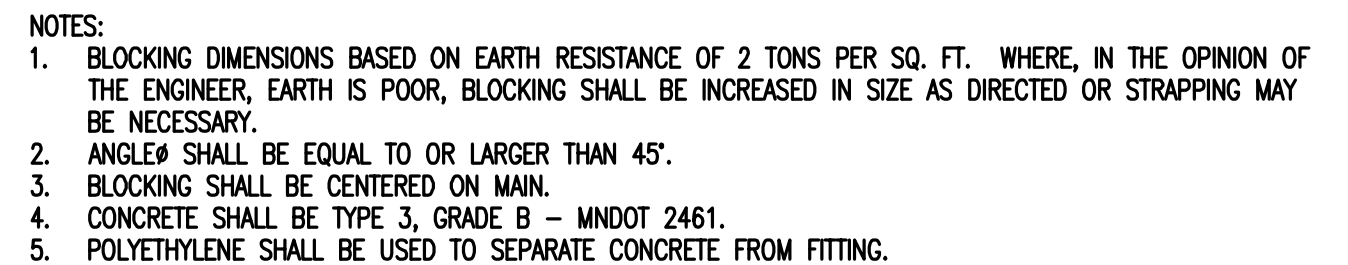
Landscaping Consultants:
APPOLD DESIGN
 2432 East First Street, Duluth MN 55812
 TEL: (218) 591-5079

REVISIONS		
NO.	DESCRIPTION	DATE
ADD. #1	ADDENDUM # 1	04/28/2010

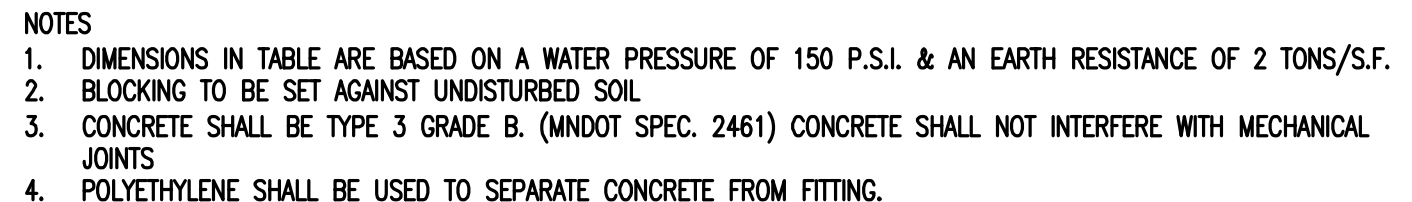
DATE ISSUED: 05-17-2010
 REVIEWED BY: CEP
 DRAWN BY: LAD
 DESIGNED BY: JEJ

AEP PROJECT NUMBER
213-1882-091
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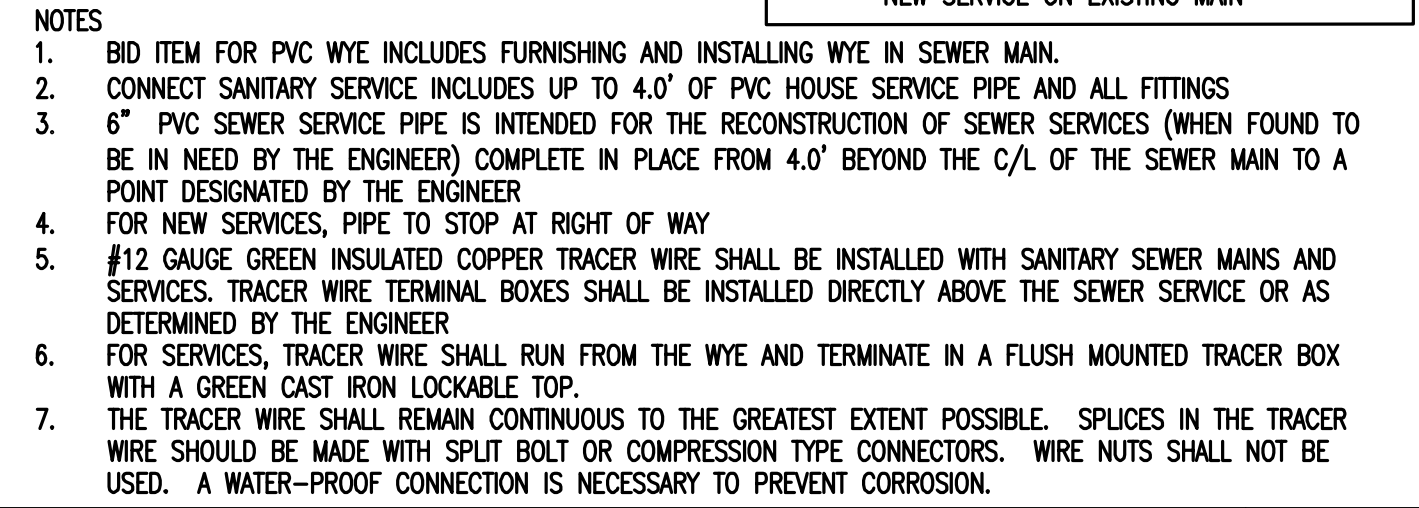
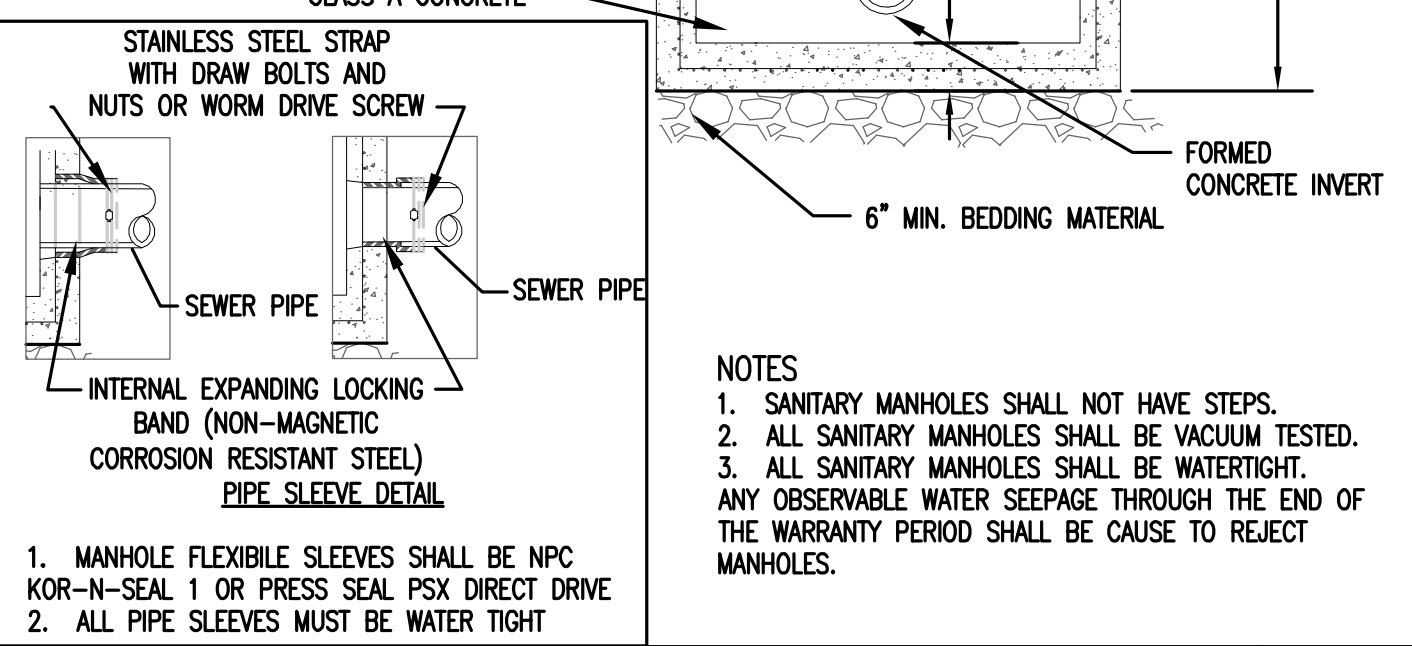
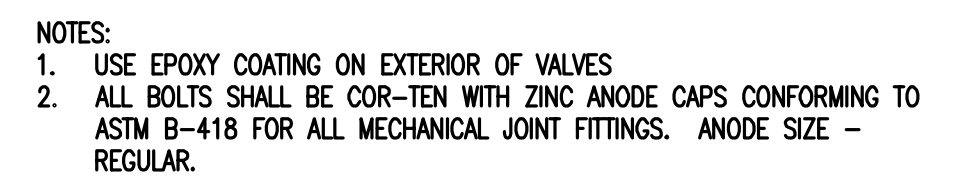
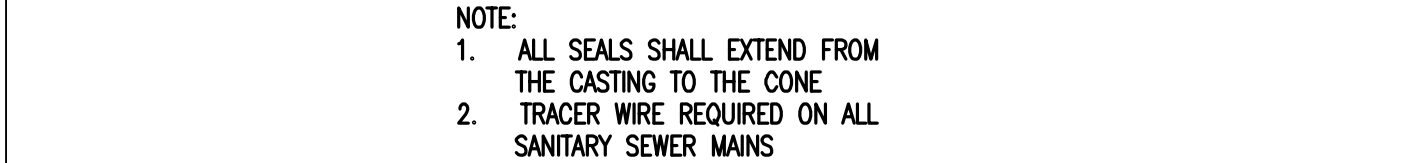
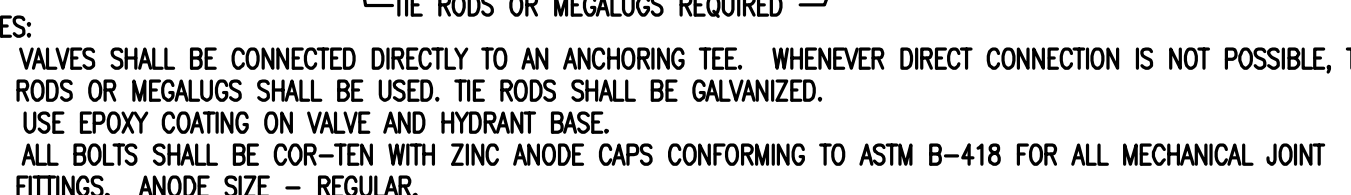
SHEET TITLE
SANITARY AND WATER MAIN PROFILES
SHEET NUMBER
C608
BID PACKAGE 1
ISSUED FOR BID



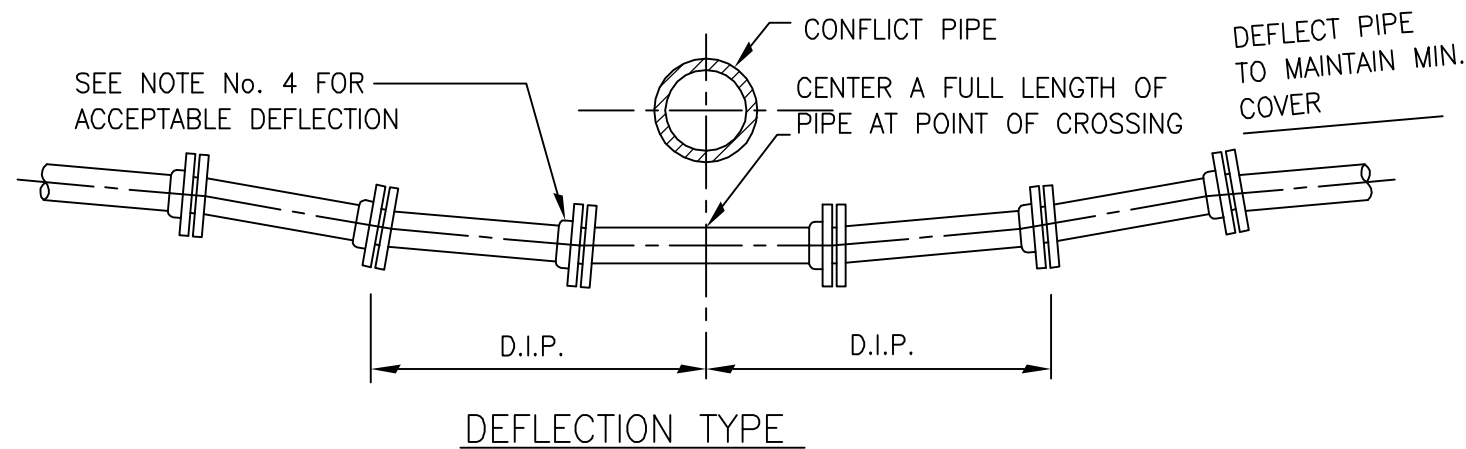
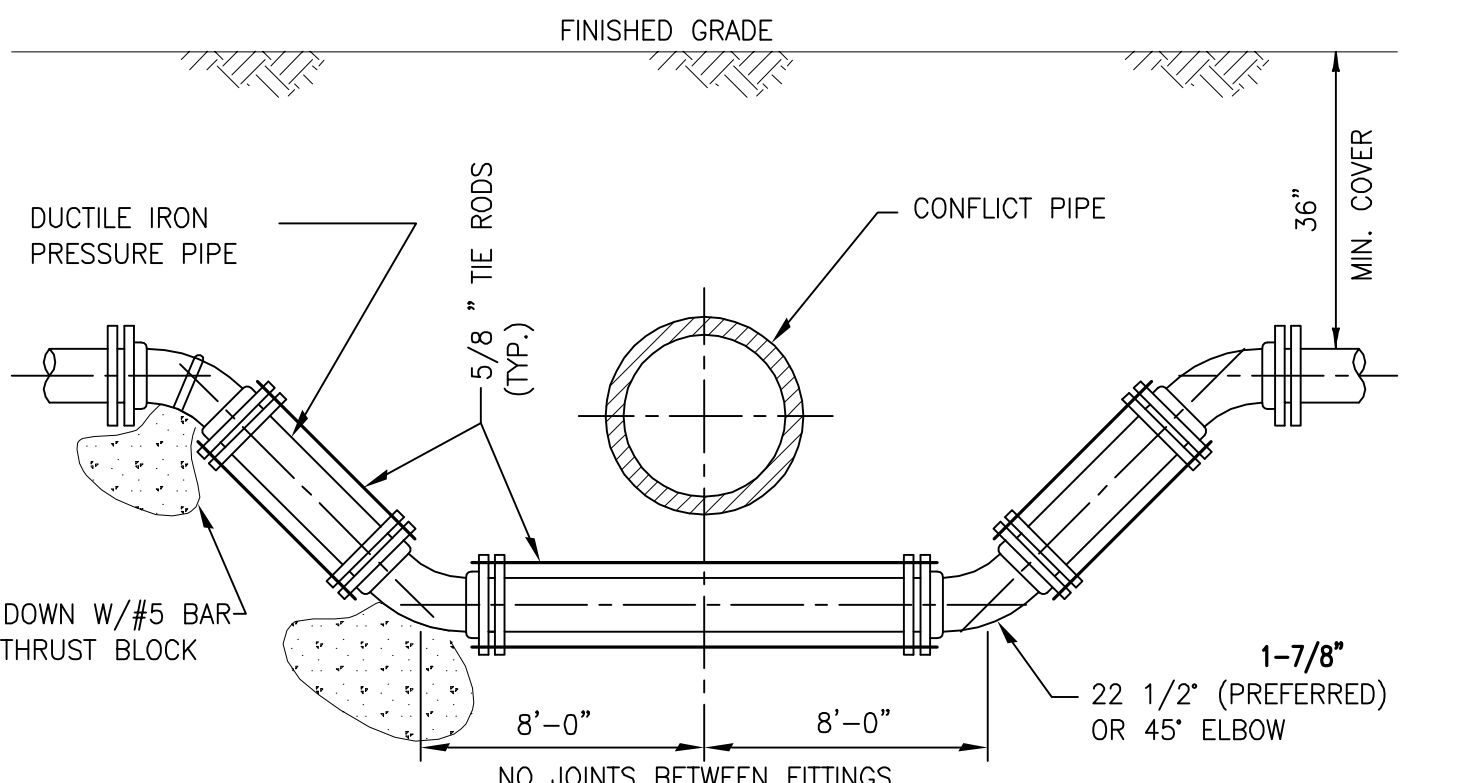
BLOCKING DIMENSIONS		
PLUG SIZE	B	D
6"	12"	15"
8"	24"	15"
10"	24"	20"
12"	30"	22"
16"	40"	28"
20"	50"	34"
24"	62"	40"
30"	80"	48"



BLOCKING DIMENSIONS								
BEND OR BRANCH SIZE	22-1/2" BENDS		45° BENDS		90° BENDS		TEES	
	B	D	B	D	B	D	B	D
0'-6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-2"	1'-3"	1'-0"
0'-8"	1'-0"	1'-0"	1'-4"	1'-2"	1'-10"	1'-6"	1'-6"	1'-4"
1'-0"	1'-4"	1'-4"	1'-10"	1'-10"	2'-8"	2'-3"	2'-3"	2'-0"
1'-4"	1'-10"	1'-8"	2'-6"	2'-4"	3'-10"	2'-10"	3'-2"	2'-4"
1'-8"	2'-4"	2'-0"	3'-3"	2'-10"	5'-0"	3'-4"	4'-0"	3'-0"
2'-0"	2'-10"	2'-4"	4'-0"	3'-10"	6'-4"	3'-10"	5'-3"	3'-4"
2'-6"	3'-6"	3'-0"	5'-4"	3'-10"	8'-0"	4'-8"	6'-3"	4'-3"



WATER VALVE BOX – DUCTILE IRON MAIN		W-17	PRECAST MECHANICAL JOINT SEWER MANHOLE		SAN-11	TYPICAL SEWER SERVICE CONNECTION		SAN-2	PE VALVE BOX SETTING		G-5
REVISED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	REVIEWED/APPROVED 12/18/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	REVISED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	REVIEWED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

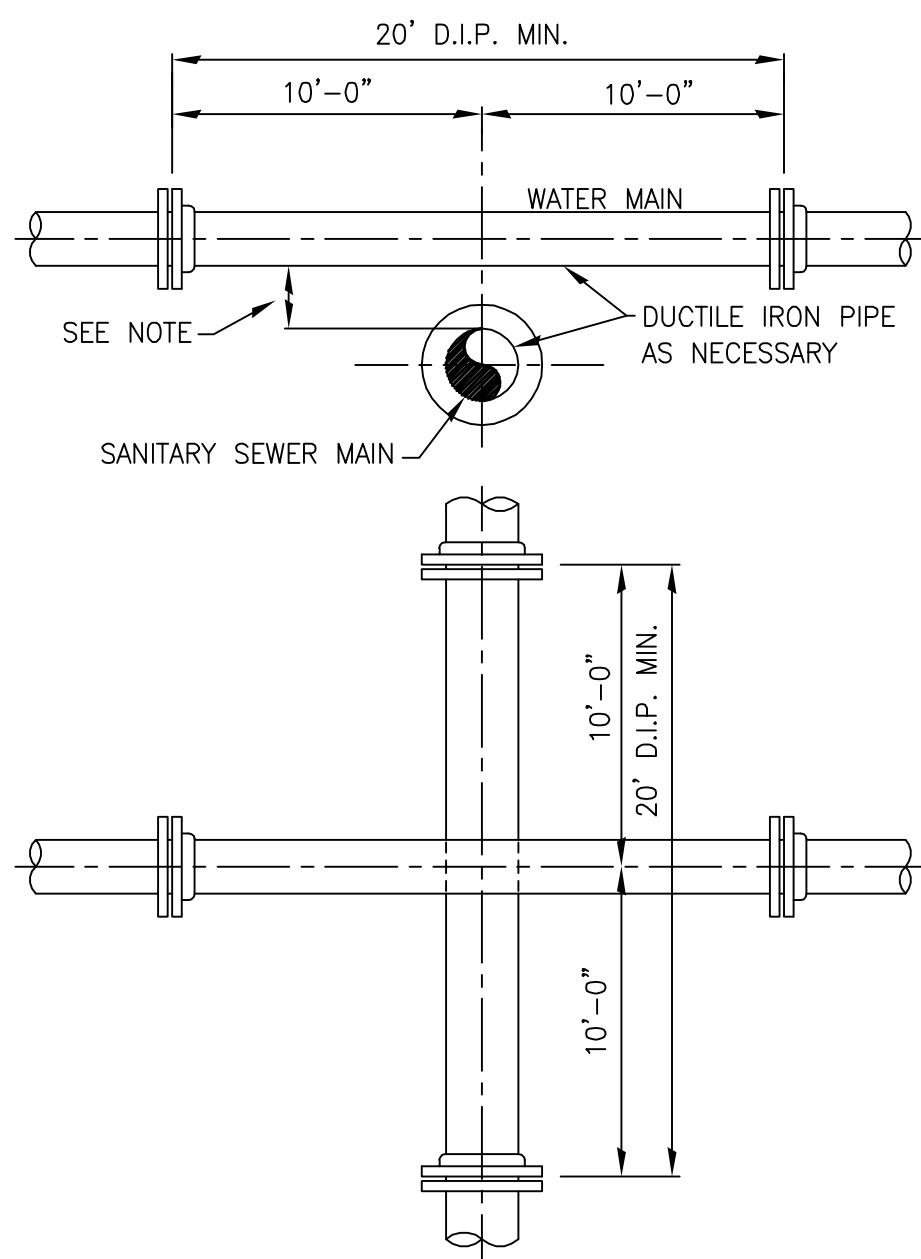


NOTES:

1. THERE SHALL BE IN ALL CASES A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN WATER MAINS AND FORCE MAINS.
2. WHEREVER POSSIBLE WATER MAINS SHALL PASS OVER FORCE MAINS OR STORM SEWERS.
3. FITTINGS SHALL BE RESTRAINED WITH RETAINER GLANDS AND EITHER THRUST BLOCKS OR TIE RODS.
4. THE DEFLECTION TYPE CROSSING IS PREFERRED.
5. DO NOT EXCEED 75% OF MANUFACTURERS RECOMMENDED MAXIMUM JOINT DEFLECTION.
6. A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN WATER MAINS AND STORM SEWERS SHALL BE MAINTAINED, WHERE THIS IS NOT POSSIBLE WATER MAIN SHALL BE D.I.P. WITH NO LESS THAN 6" SEPARATION.

CONFLICT SEPARATION DETAIL

N.T.S.

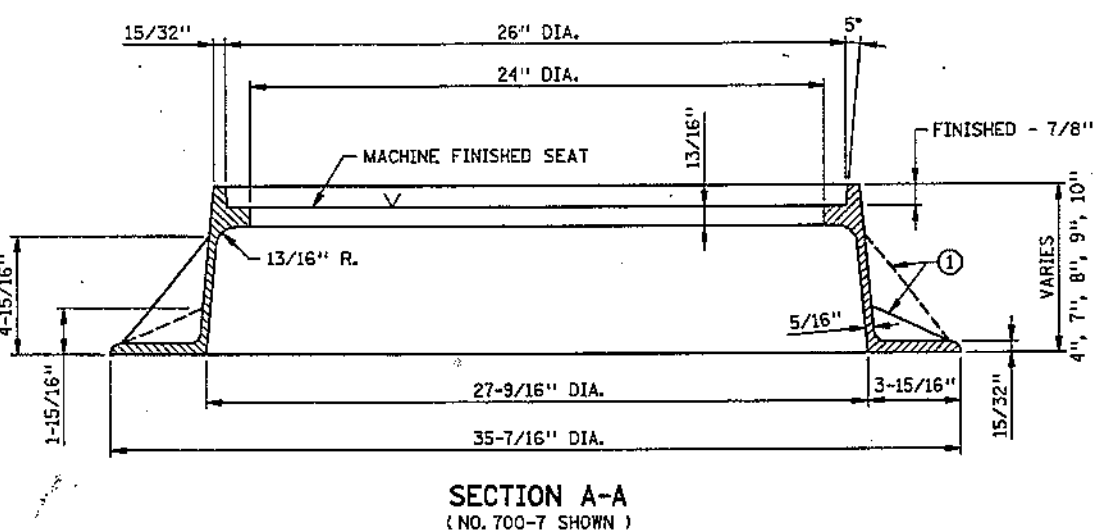
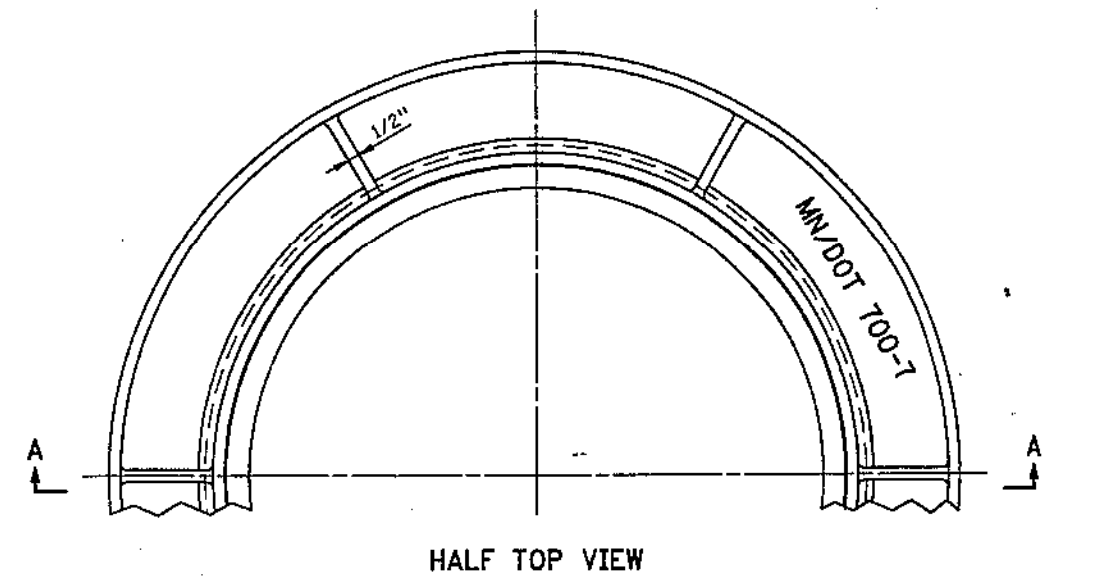


NOTES:

1. SEWER CROSSING UNDER WATER MAINS SHALL BE POSITIONED TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN JOINTS ARE EQUALLY SPACED FROM THE POINT OF CROSSING WITH NO LESS THAN 10 FEET BETWEEN ANY TWO JOINTS AND BOTH PIPES SHALL BE D.I.P. WHERE THERE IS NO ALTERNATIVE TO SEWER PIPES CROSSING OVER A WATER MAIN, THE CRITERIA FOR MINIMUM SEPARATION BETWEEN LINES AND JOINTS IN THE ABOVE SHALL BE REQUIRED AND BOTH PIPES BE D.I.P. IRRESPECTIVE OF SEPARATION.
2. MAINTAIN 10 FEET HORIZONTAL DISTANCE BETWEEN WATER AND SEWER MAINS AS A MINIMUM.
3. FORCE MAIN CROSSING WATER MAIN SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES 3. BETWEEN THE OUTSIDE OF THE FORCE MAIN AND THE OUTSIDE OF THE WATER MAIN WITH WATER MAIN CROSSING OVER FORCE MAIN.

WATER/SEWER SEPARATION DETAIL

N.T.S.



NOTES:

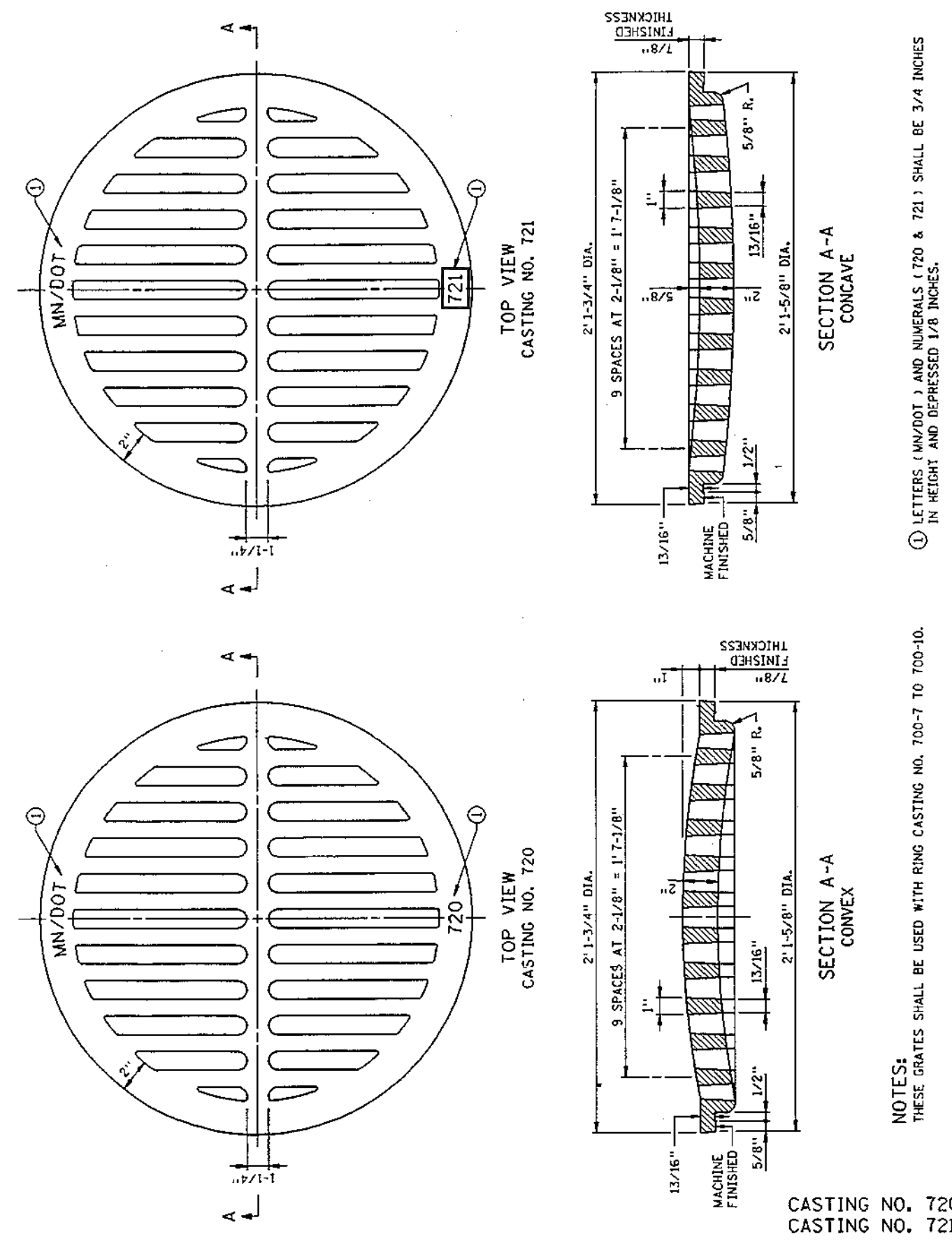
THIS RING CASTING TO BE USED IN CONJUNCTION WITH ANY OF THE FOLLOWING CASTINGS:
MANHOLE COVER NO. 715 OR NO. 716
MANHOLE OR CATCH BASIN GRATES NO. 720 OR NO. 721.
① ALTERNATING GUSSETS (3 EACH).

4" CASTING NO. 700-4 (98 LBS.)
7" CASTING NO. 700-7 (118 LBS.)
8" CASTING NO. 700-8
9" CASTING NO. 700-9
10" CASTING NO. 700-10

APPROVED OCTOBER 25, 1996
Donald J. Reinhold
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
RING CASTING FOR MANHOLE
OR CATCH BASIN

SPECIFICATION
REFERENCE
2506
STANDARD
PLATE
NO.
4101D



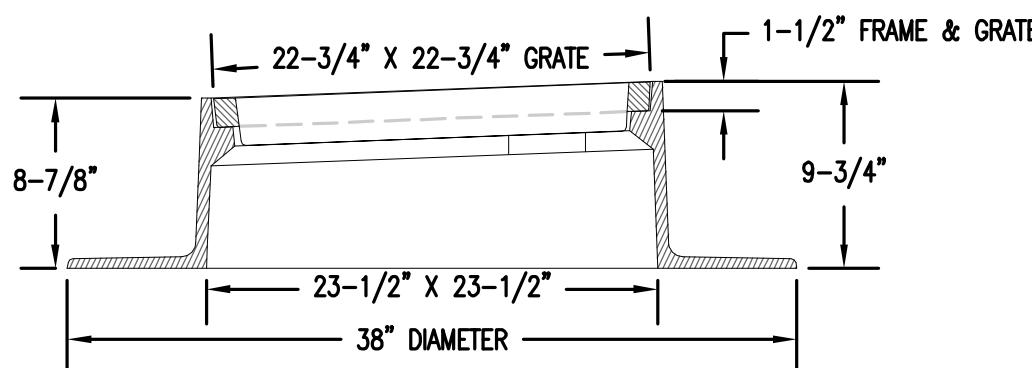
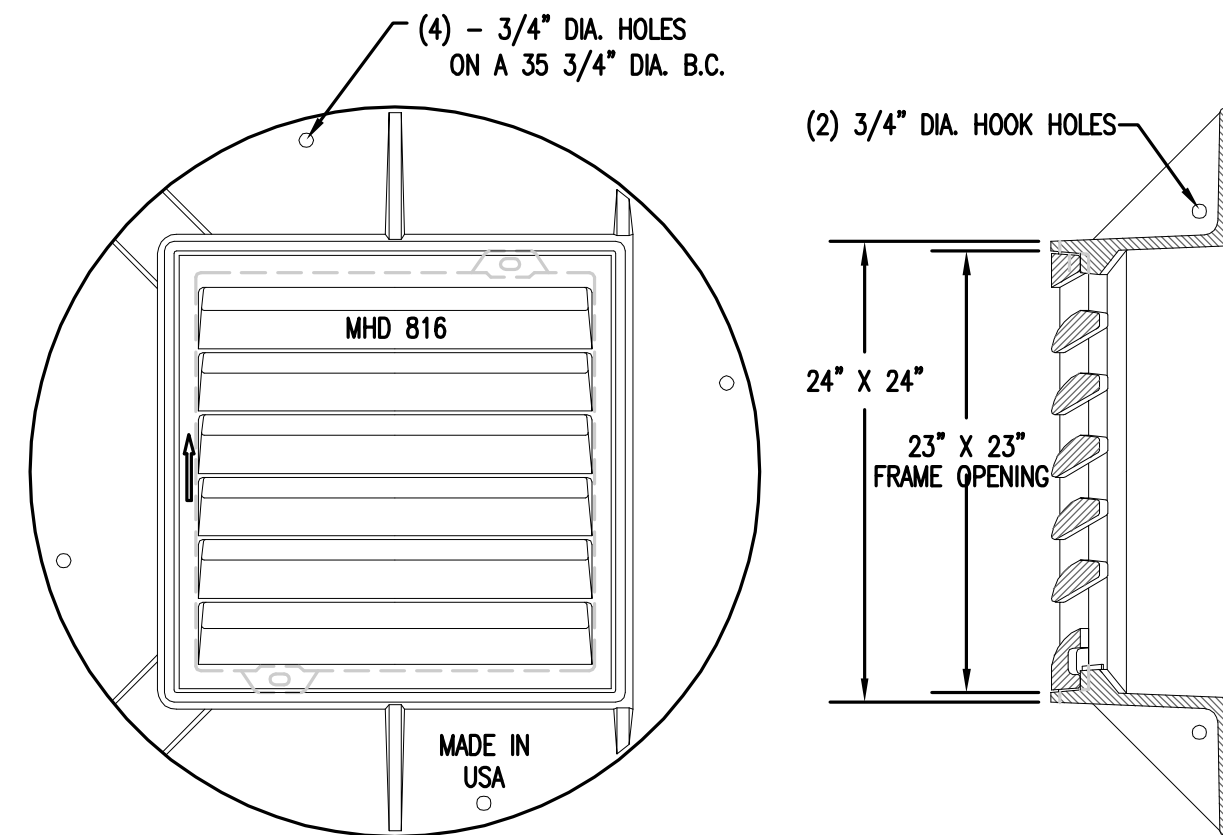
① LETTERS 'M' AND 'S' SHALL BE USED IN THE FOLLOWING MANNER: 'M' FOR MANHOLE AND 'S' FOR SEWER.

NOTES:
THESE DATES SHALL BE USED WITH RING CASTING NO. 700-7 TO 700-10.

APPROVED Oct. 1, 1966
W. J. Eber
ASSISTANT COMMISSIONER
ENGINEERING STANDARDS

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
SPECIAL GRATE CASTINGS
FOR CATCH BASIN
CONVEX AND CONCAVE

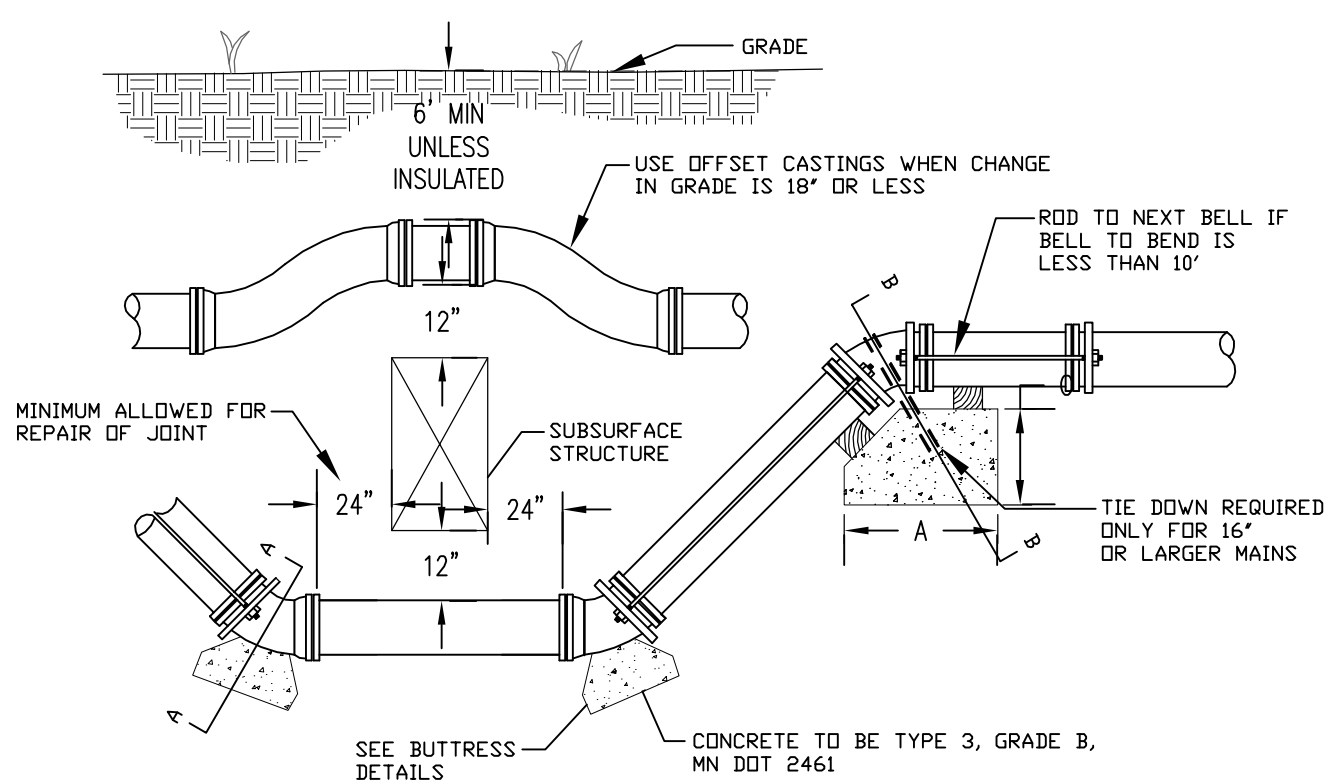
SPECIFICATION
REFERENCE
2506
REVISED
5-5-99 A.X.J.
STANDARD
PLATE
NO.
4140D



NOTES:

- COMPONENT NO'S: TOP FRAME 5005, GRATE 816 (STD PLATE 4154B).
- MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
- WEIGHT: FRAME 262#; GRATE 131#

CATCH BASIN/CURB BOX CASTINGS
REVIEWED/APPROVED 3/11/09
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES
NO SCALE

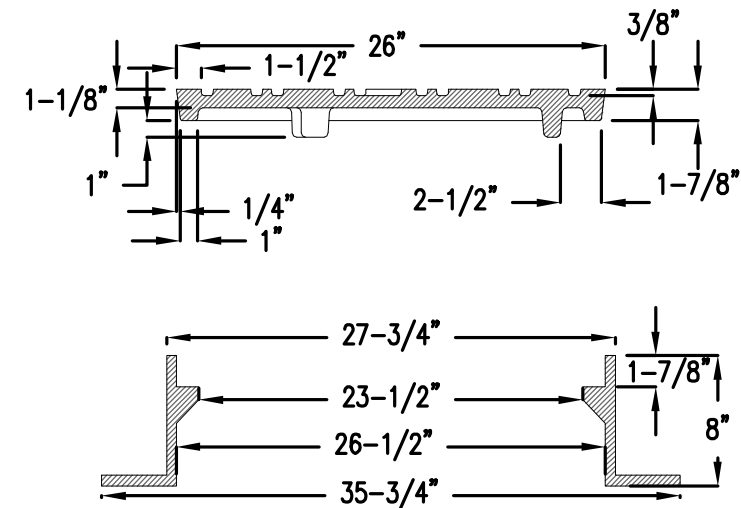
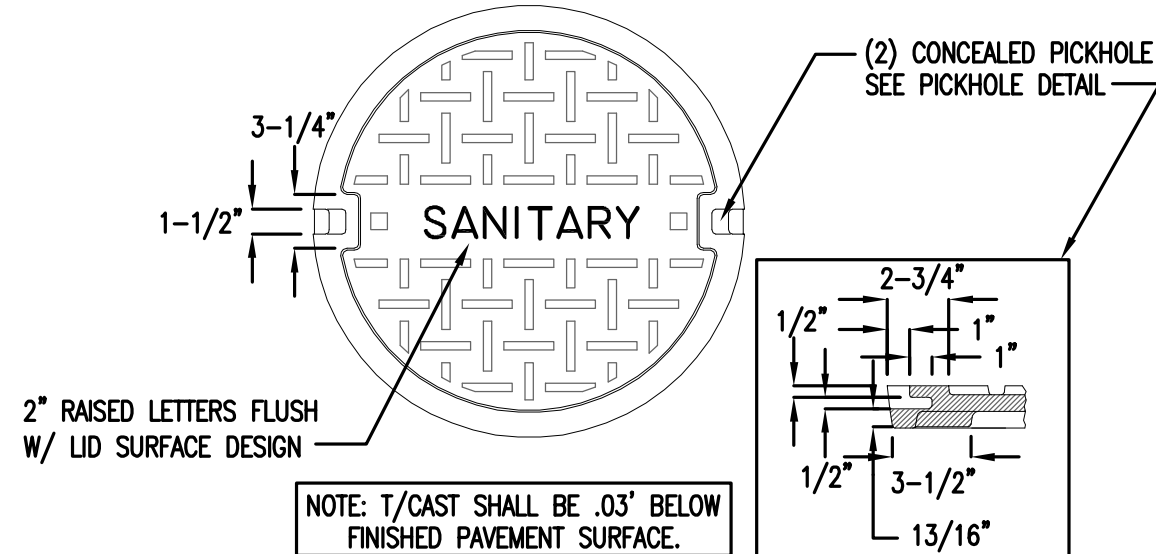


1. TIE RODS, BOLTS, NUTS, BANDS, AND WASHERS TO BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY CONTRACTOR. ALL STEEL MATERIAL TO BE THOROUGHLY COATED WITH BITUMASTIC EQUAL TO KOPPERS NO. 505.
2. STRAPPING MATERIAL:
NO. RODS 2 PER TIE
DIA. RODS 1 INCH
STRAP SIZE 1/2" X 2"
BOLT DIA. 3/4 INCH
WASHER SIZE 1/2" X 3" X 5"
3. OFFSETS FOR 16" WATER MAIN AND LARGER, TIE DOWNS SHALL BE INSTALLED AS SHOWN, TURNBUCKLE AND BLOCK SIZES:

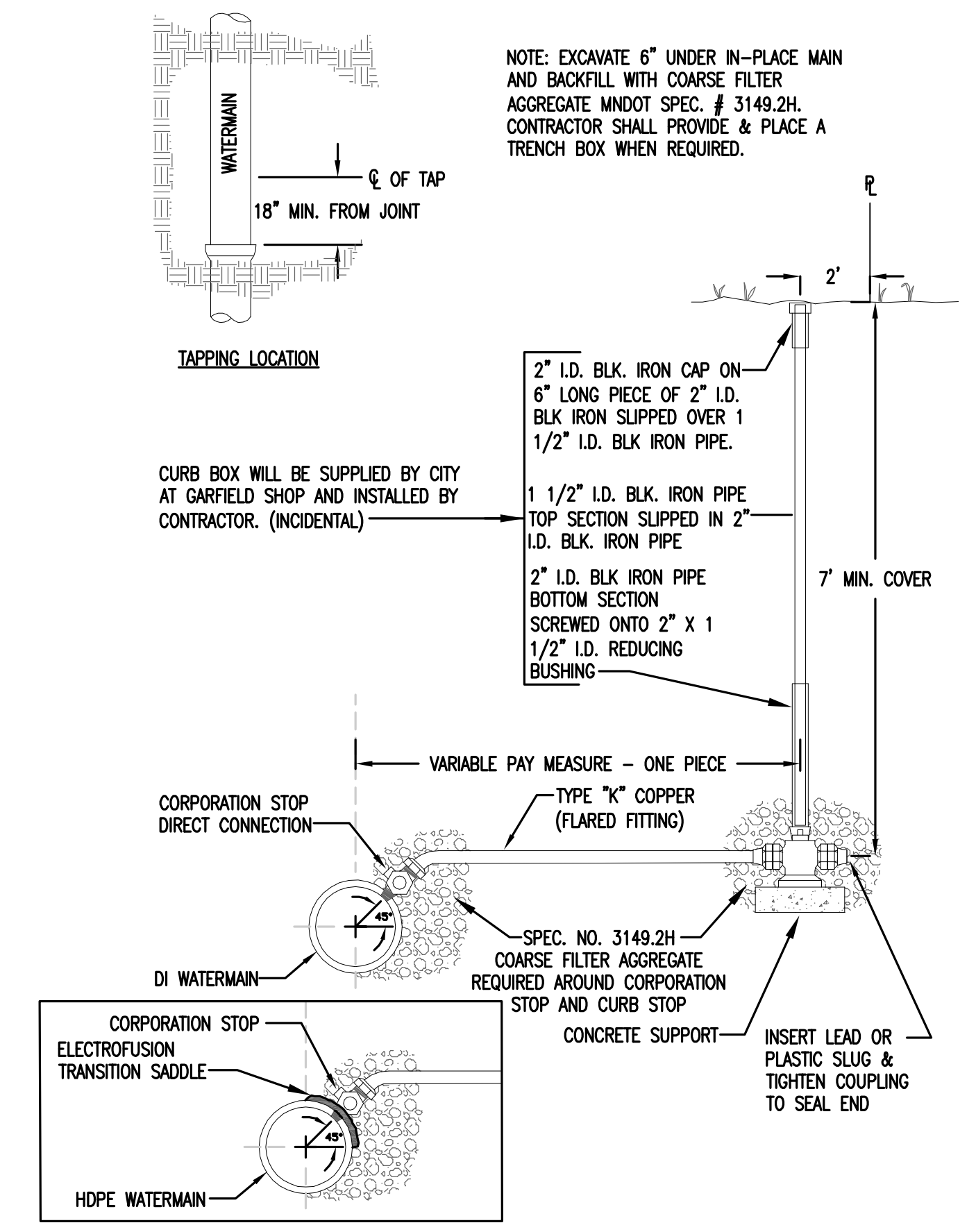
PIPE SIZE	A	B	C	D
16"	6.0'	2.5'	3.0'	1"
20"	8.0'	3.0'	3.0'	1 1/4"
24"	8.0'	3.0'	5.0'	1 1/2"
30"	8.0'	5.0'	5.0'	2"

STRAPPING WATER MAIN VERTICAL OFFSETS
REVIEWED / APPROVED 1/20/05
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES
NO SCALE

WGT. 298 LBS
WGT. 122 LBS
TOTAL WEIGHT 420 LBS.
MATERIAL: GRAY IRON CLASS 35B
SPEC.: ASTM A-48-74
NOTE: SUITABLE FOR HS25 WHEEL LOADS



SANITARY CASTING DETAIL
REVIEWED/APPROVED 3/11/09
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES
NO SCALE



TYPICAL COPPER WATER SERVICE
REVIEWED/APPROVED 3/11/09
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES
NO SCALE

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Interior Architects:

SJA ARCHITECTS
11 E Superior Street Suite 340, Duluth MN 55802
TEL: (218) 724-8576 / FAX: (218) 724-8717

Structural Engineers:

MBJ CONSULTING ENG.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-8306

M/E/P/FP Engineers:

COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

Baggage Handling Systems Consultants:

BNP ASSOCIATES INC.
101 East Ridge Office Park, Suite 103, Danbury CT 06810
TEL: (203) 792-3000 / FAX: (203) 792-4900

Landscaping Consultants:

APPOLD DESIGN
2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE
ADD #1	ADDENDUM # 1	
#1	04/28/2010	

DATE ISSUED: 05-17-2010

REVIEWED BY: CEP

DRAWN BY: LAD

DESIGNED BY: JEH

AEP PROJECT NUMBER

213-1882-091

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SHEET TITLE

UTILITY

CITY OF DULUTH

DETAILS

(SHEET 2 OF 2)

SHEET NUMBER

C610

**BID PACKAGE 1
ISSUED FOR BID**