REDSTONE GATEWAY

Advancing the Missions of Redstone Arsenal

REDSTONE GATEWAY

PACKAGE I - LAKE F
(UNSECURE AREA)

FOR THE

CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

BID SET

HUNTSVILLE
The Star of Alabama

COPT
CORPORATE OFFICE PROPERTIES TRUST

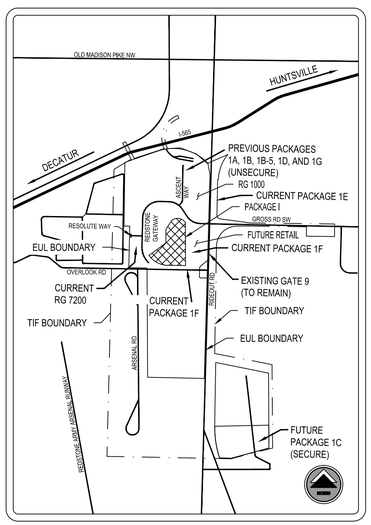
Jim Wilson & Associates, LLC

LBYD, INC. PROJECT NO. 302-10-002A
CITY OF HUNTSVILLE PROJECT NO. 65-12-SP23

JUNE 19, 2012

NOTE:
FOR PLOTTING PURPOSES
GRAY SHADES ARE PRESENT
24" X 36" FULL SIZE SHEETS

LOCATION MAP



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C2.1	EXISTING CONDITIONS PLAN
C2.2	EXISTING CONDITIONS PLAN
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* ELECTRICAL, LANDSCAPING, HARDSCAPE AND IRRIGATION PLANS TO BE BID SEPARATELY.

ADDENDUM #5 = 7/10/2012

ALABAMA REGISTERED No. 26754 PROFESSIONAL ENGINEER
7/10/2012

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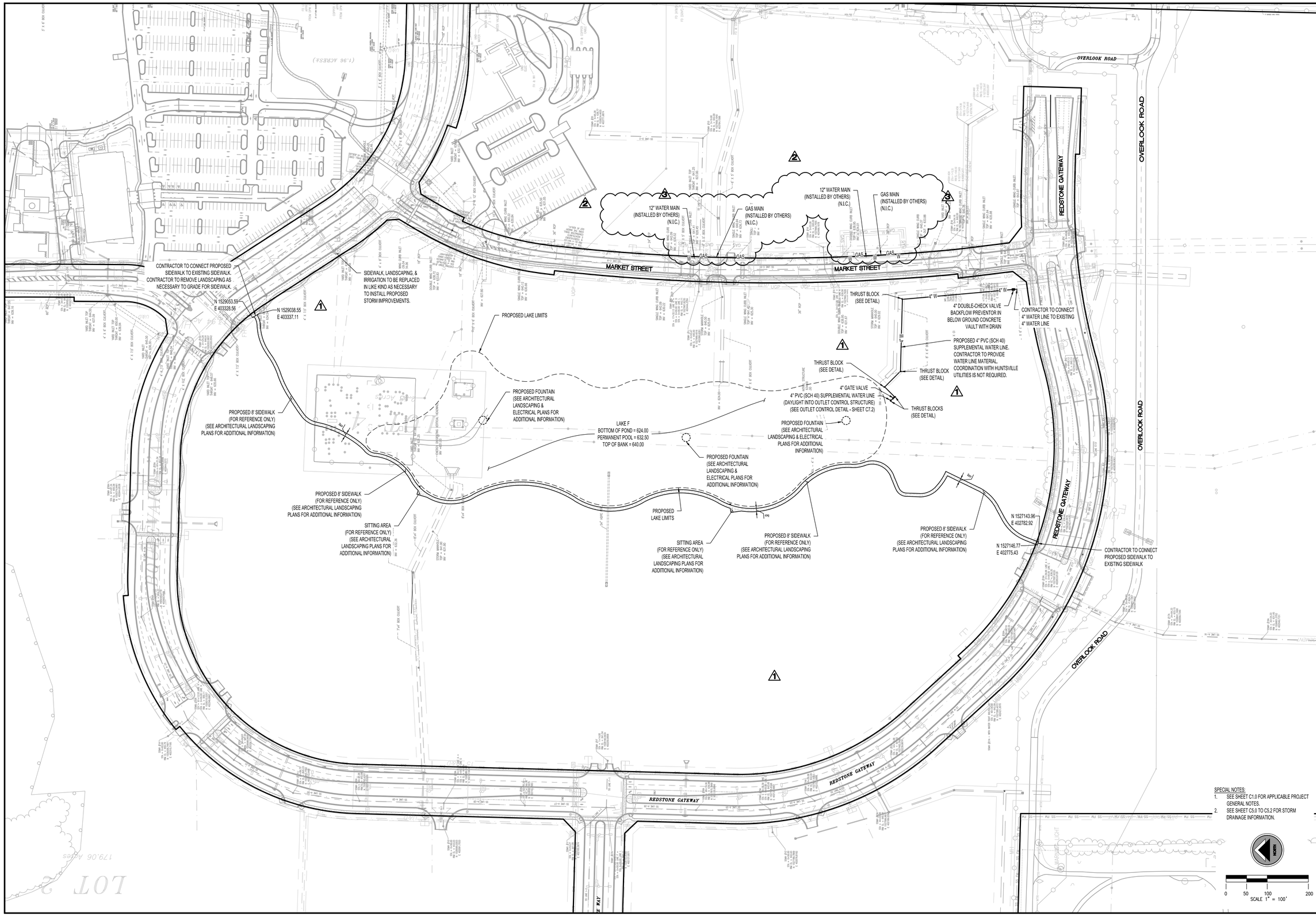

SPECIAL NOTES:
1. SEE SHEET C1.0 FOR APPLICABLE PROJECT GENERAL NOTES.
2. SEE SHEET C5.0 TO C5.2 FOR STORM DRAINAGE INFORMATION.

NORTH

0 50 100 200
SCALE 1" = 100'

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7/10/2012

HUNTSVILLE
The Star of Alabama

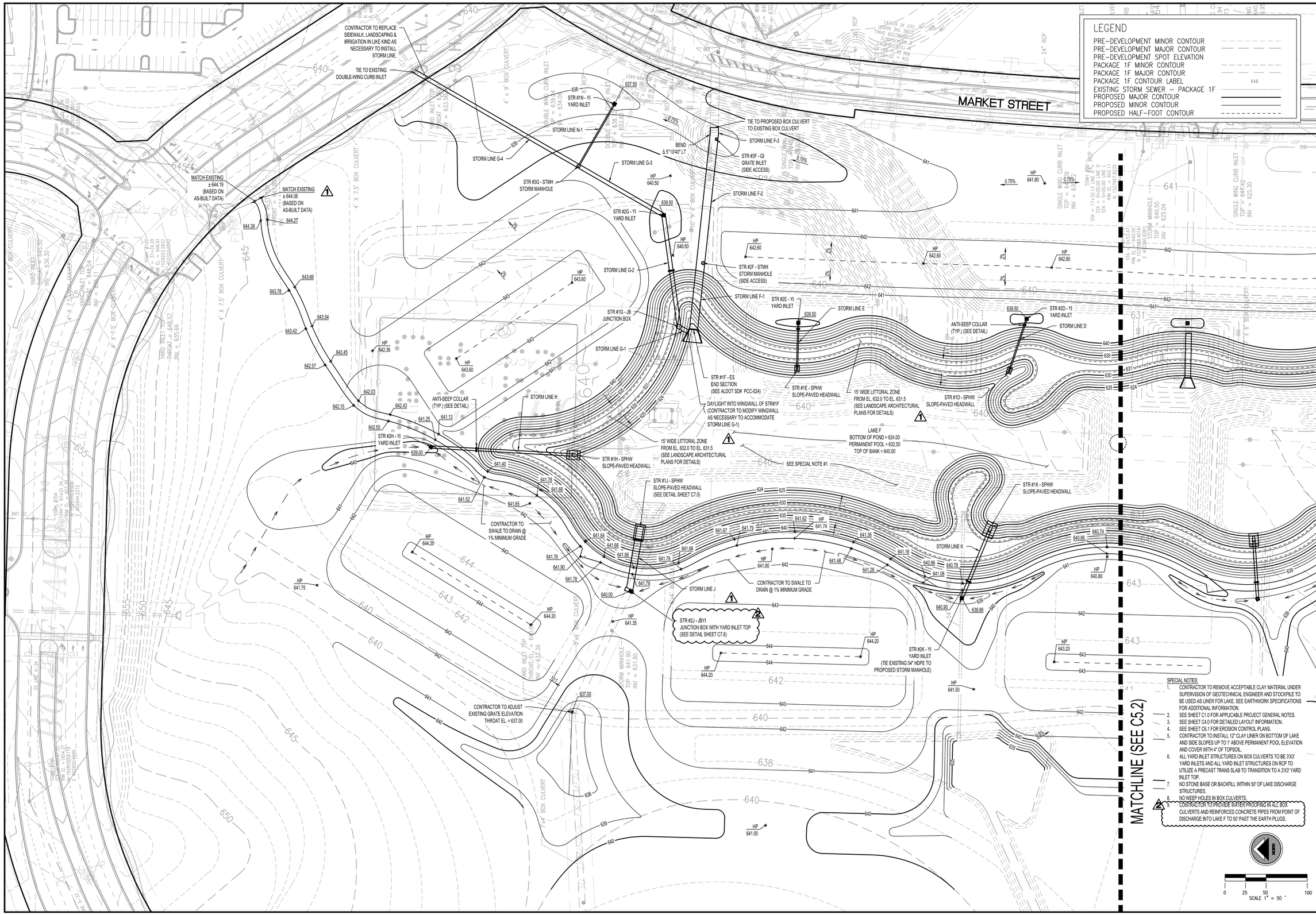
SITE LAYOUT & UTILITY PLAN
REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION
3	7/10/12	TBE	TAR	Addendum #5
2	7/6/12	TBE	TAR	ADDENDUM #3
1	6/29/12	TBE	TAR	ADDENDUM #1

	TRAFFIC	REAL ESTATE	CITY REVIEW	PK	DRAINAGE

DRAWN: TBE
CHECKED: RAN
DATE: June 19, 2012

C4.0



SPECIAL NOTES:

1. CONTRACTOR TO REMOVE ACCEPTABLE CLAY MATERIAL UNDER SUPERVISION OF GEOTECHNICAL ENGINEER AND STOCKPILE TO BE USED AS LINER FOR LAKE. SEE EARTHWORK SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. SEE SHEET C1.0 FOR APPLICABLE PROJECT GENERAL NOTES.
3. SEE SHEET C4.0 FOR DETAILED LAYOUT INFORMATION.
4. SEE SHEET C6.1 FOR EROSION CONTROL PLANS.
5. CONTRACTOR TO INSTALL 12" CLAY LINER ON BOTTOM OF LAKE AND SIDE SLOPES UP TO 1' ABOVE PERMANENT POOL ELEVATION AND COVER WITH 4" OF TOPSOIL.
6. ALL YARD INLET STRUCTURES ON BOX CULVERTS TO BE 3'X3' YARD INLETS AND ALL YARD INLET STRUCTURES ON RCP TO UTILIZE A PRECAST TRANS SLAB TO TRANSITION TO A 3'X3' YARD INLET TOP.
7. NO STONE BASE OR BACKFILL WITHIN 50' OF LAKE DISCHARGE STRUCTURES.
8. NO WEEP HOLES IN BOX CULVERTS.
9. CONTRACTOR TO PROVIDE WATER PROOFING IN ALL BOX CULVERTS AND REINFORCED CONCRETE PIPES FROM POINT OF DISCHARGE INTO LAKE F TO 50' PAST THE EARTH PLUGS.

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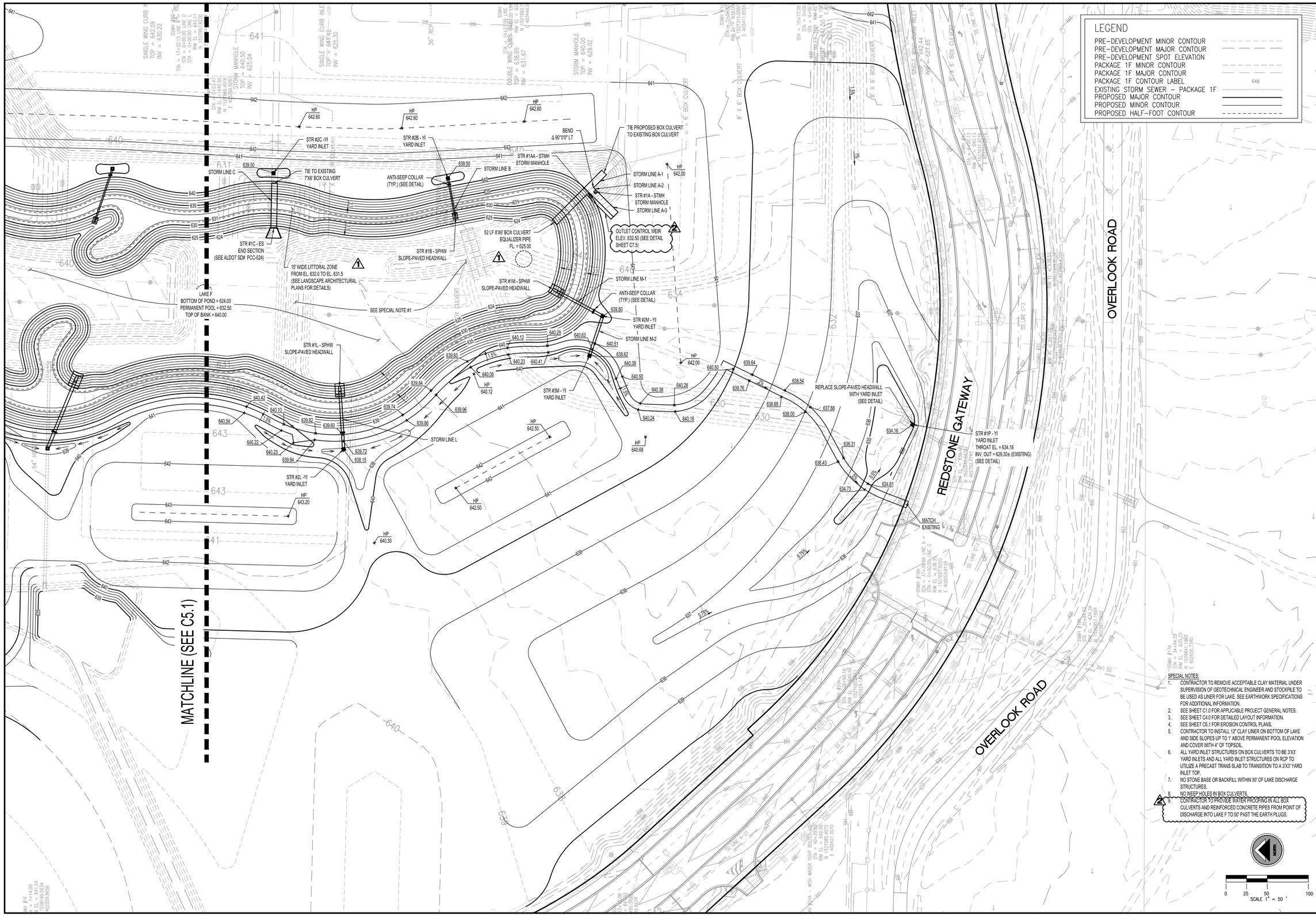
HUNTSVILLE The Star of Alabama

GRADING & STORM DRAINAGE PLAN
REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION	TRAFFIC	REAL ESTATE	PE	DRAINAGE
2	7/10/12	TBE	TAR	Addendum #5				
1	6/29/12	TBE	TAR	ADDENDUM #1				

DRAWN: TBE
CHECKED: RAN
DATE: June 19, 2012
CORP REVIEW

C5.1



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7/10/2012

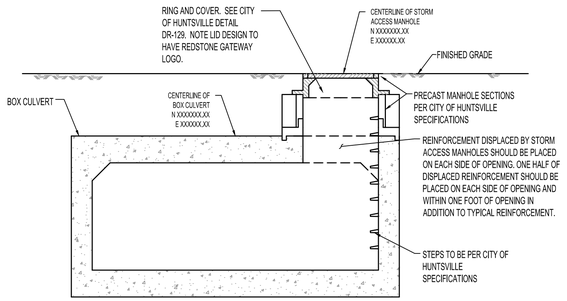
HUNTSVILLE The Star of Alabama

GRADING & STORM DRAINAGE PLAN
REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION	TRAFFIC	REAL ESTATE	CITY CONSTRUCTION	PE	DRAINAGE
2	7/10/12	TBE	TAR	Addendum #5					
1	6/29/12	TBE	TAR	ADDENDUM #1					

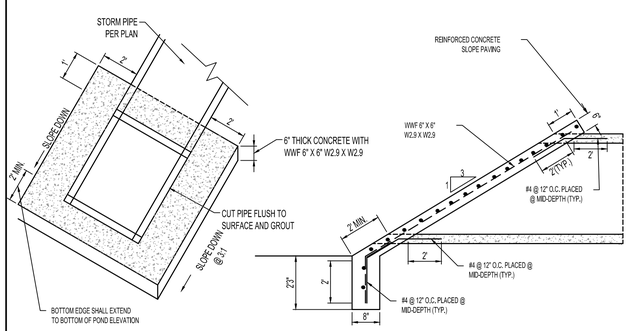
DRAWN: TBE
DATE
CHECKED: RAN
DATE: June 19, 2012

C5.2



STORM ACCESS MANHOLE

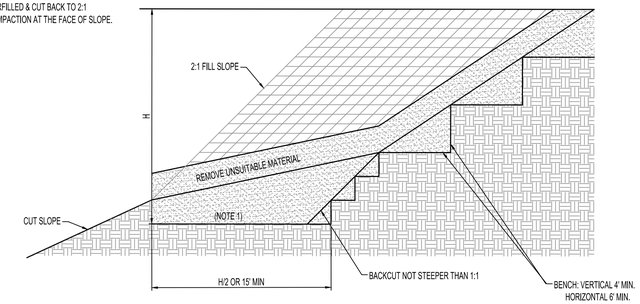
N.T.S.



Box Culvert Slope Paved Headwall

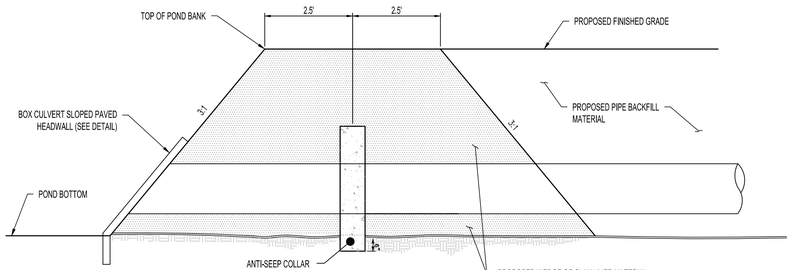
N.T.S.

NOTE:
1. 2 FT MIN. KEY DEPTH AT TOE; TIP KEY 1 FT NOMINAL OR 4% INTO SLOPE.
2. FILL SLOPE SHALL BE OVERFILLED & CUT BACK TO 2:1 TO ACHIEVE ADEQUATE COMPACTION AT THE FACE OF SLOPE.



Fill Over Cut Slope Detail

N.T.S.



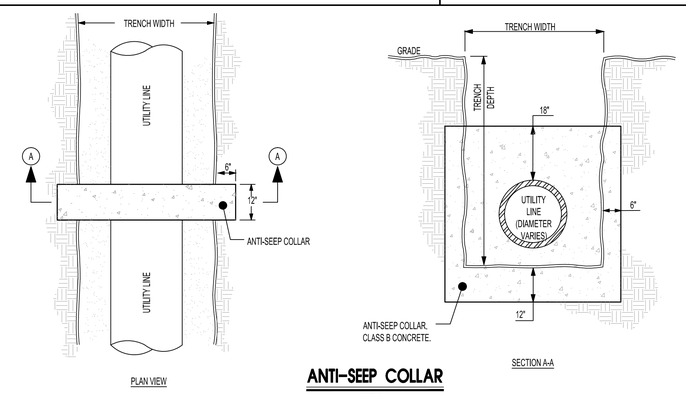
* CONTRACTOR SHALL INSTALL RETENTION POND EARTH PLUG AT ALL STORM PIPE PENETRATIONS INTO PONDS. EARTH PLUG SHALL BE INSTALLED FIRST THEN EXCAVATED FOR PIPE AND COLLAR INSTALLATION. EXCAVATED EARTH PLUG MATERIAL SHALL BE BACKFILLED IN PIPE TRENCH UPON COMPLETION OF PIPE INSTALLATION.

* CONTRACTOR SHALL LOCATE ANTI-SEEP COLLAR AT THE PIPE JOINT CLOSEST TO SHOWN LOCATION. JOINT MUST BE LOCATED WITHIN PLUG WEDGE.

RETENTION POND EARTH PLUG

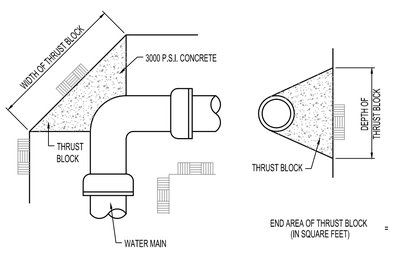
N.T.S.

* ANTI-SEEP COLLAR TO BE KEYED INTO CONCRETE BOX CULVERTS.



ANTI-SEEP COLLAR

N.T.S.



THRUST AT FITTINGS IN POUNDS*

PIPE SIZE	90° BEND	45° BEND	22.5° BEND	TEE OR PLUG
1-1/2"	625	340	175	445
2"	970	525	270	690
2-1/2"	1,405	765	360	990
3"	2,095	1,135	580	1,480
4"	3,445	1,870	955	2,430
6"	7,425	4,020	2,055	5,250
8"	12,300	6,600	3,360	8,700
10"	20,100	10,875	5,455	15,525
12"	26,850	14,685	7,620	19,125

*BASED ON 150 PSI TEST PRESSURE

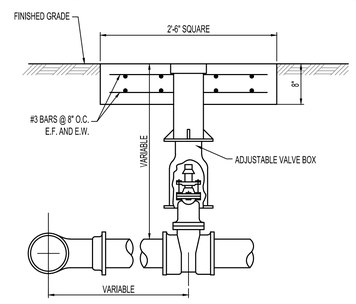
SOIL BEARING LOAD

SOIL	BEARING LOAD P.S.F.
MUCK	0
SOFT CLAY	1,000
SILT	1,500
SANDY SILT	3,000
SAND	4,000
SANDY CLAY	6,000
HARD CLAY	9,000
ROCK, POOR	10,000
ROCK, GOOD	50,000

$$\text{END AREA OF THRUST BLOCK (IN SQUARE FEET)} = \frac{\text{THRUST (AT FITTING)}}{\text{SOIL BEARING LOAD (AT FITTING)}}$$

Typical Thrust Block Detail

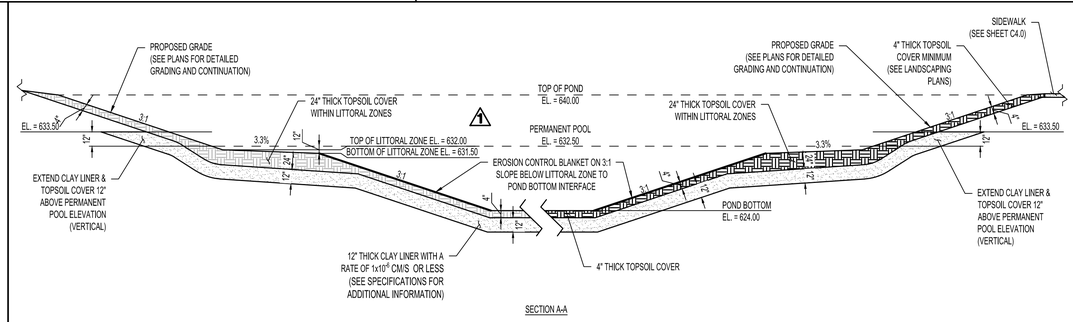
N.T.S.

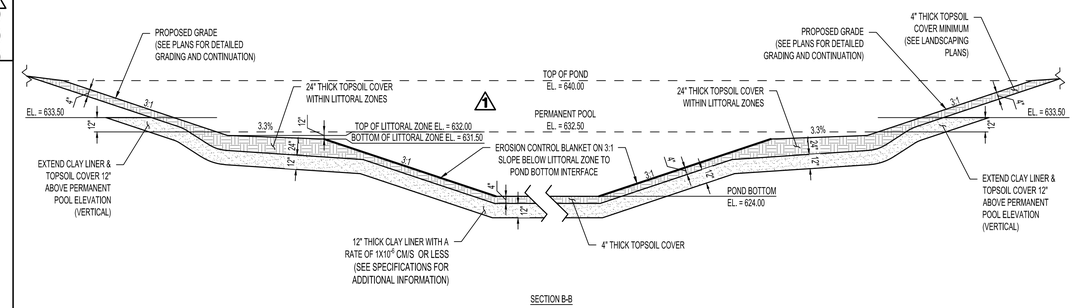


Typical Gate Valve

N.T.S.

SEE SHEET C7.5 FOR
OUTLET CONTROL STRUCTURE DETAIL





POND LINER & COVER

N.T.S.

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7/10/2012

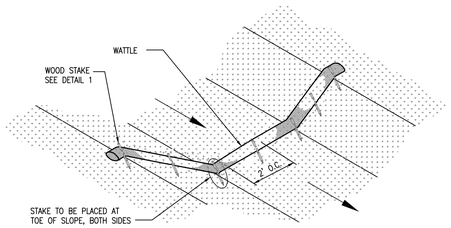
HUNTSVILLE
The Star of Alabama

DETAILS
REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION				
2	7/10/12	TBE	TAR	Addendum #5				
1	6/29/12	TBE	TAR	ADDENDUM #1	TWVTC	REAL ESTATE CONTROLLER	PE	DRAINAGE

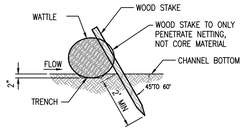
DRAWN: TBE
CHECKED: RAN
DATE: June 19, 2012

C7.2



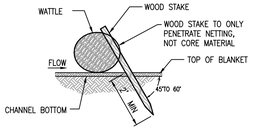
Wattle Spacing

REFER TO ALDOT SPECIAL DRAWING NO. ESC-300
FOR RECOMMENDED PLACEMENT INTERVAL BETWEEN WATTLES



NOTE: TRENCH OPTION IS MOST APPLICABLE
IN LOOSE, UNCONSOLIDATED SOILS

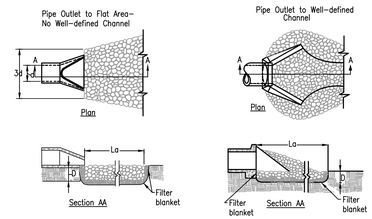
STAKE DETAIL 1
(WITH TRENCH)



STAKE DETAIL 2
(NO TRENCH)

CdW Wattle Check Dam

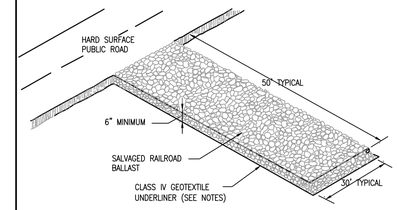
N.T.S.



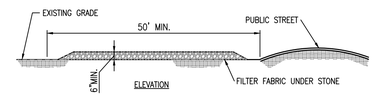
SPECIAL NOTES:
1. RIP RAP DISCHARGE APRON SHALL BE INSTALLED AT A ZERO SLOPE.
2. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
3. DEPTH OF APRON SHALL BE NO LESS THAN 6".
4. FOR DETERMINING APRON LENGTH, WIDTH, AND MEDIAN STONE SIZE, REFER TO FIGURES OP-2 AND OP-3 FROM THE LATEST ALABAMA EROSION CONTROL HANDBOOK.
5. THE GRADATION OF RIPRAP SHALL BE PER TABLES OP-2 AND OP-3 FROM THE LATEST ALABAMA EROSION CONTROL HANDBOOK.

OP Outlet Protection

N.T.S.



PLAN

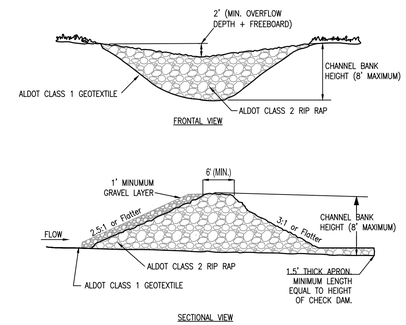


SPECIAL NOTES :

1. A STABILIZED PAD OF CRUSHED STONE SPREAD OVER FILTER FABRIC SHALL BE LOCATED WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC STREET. THE STONE SHALL BE SALVAGED BALLAST FROM RAILROAD DEMOLITION, FILTER FABRIC SHALL BE NONWOVEN GEOTEXTILE CLASS IV OR EQUAL.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
3. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY BY STREET CLEANING (NOT FLUSHING). WHEN NECESSARY, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.
4. IF THE PAD SLOPE TOWARDS THE ROAD EXCEEDS 2%, A DIVERSION RIDGE 6" – 8" HIGH WITH 3:1 SIDE SLOPES MUST BE CONSTRUCTED ACROSS THE FOUNDATION APPROXIMATELY 15' AWAY FROM THE ROAD AND DRAIN INTO A SEDIMENT TRAP OR BASIN.

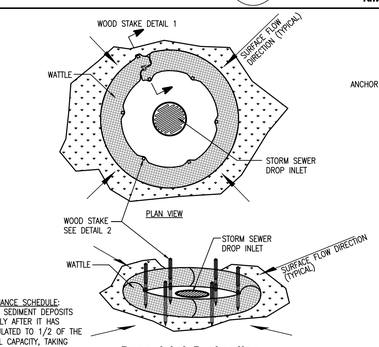
CEP Construction Exit Pad

N.T.S.



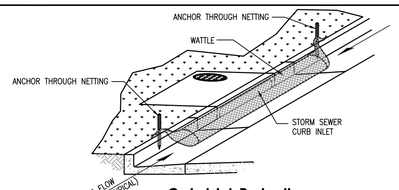
Rd Rock Filter Dam

N.T.S.

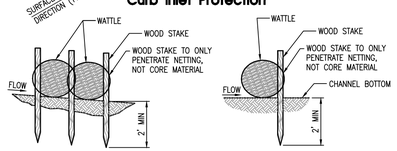


MAINTENANCE SCHEDULE:
REMOVE SEDIMENT DEPOSITS PROMPTLY AFTER IT HAS ACCUMULATED TO 1/2 OF THE ORIGINAL CAPACITY, TAKING CARE NOT TO UNDERMINE THE ENTRENCHED WATTLES. INSPECT PERIODICALLY FOR DETERIORATION OR DAMAGE FROM CONSTRUCTION ACTIVITIES. REPAIR DAMAGED BARRIER IMMEDIATELY.

Drop Inlet Protection



Curb Inlet Protection

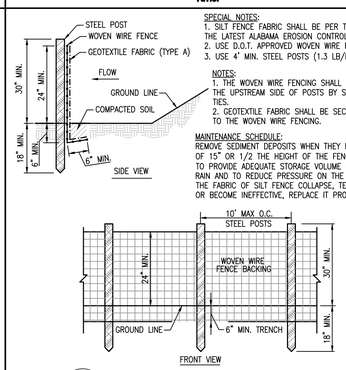


STAKE DETAIL 1 STAKE DETAIL 2

NOTE:
WATTLES MAY BE A STRAW WATTLE, A MULCH WATTLE, OR APPROVED EQUAL. STONE WATTLES SHALL BE USED FOR CURB INLETS ADJACENT TO PAVING.

WIP Wattle Inlet Protection

N.T.S.



SPECIAL NOTES:
1. SILT FENCE FABRIC SHALL BE PER TABLE SB-1 FROM THE LATEST ALABAMA EROSION CONTROL HANDBOOK.
2. USE D.O.T. APPROVED WOVEN WIRE FENCE.
3. USE 4' MIN. STEEL POSTS (1.3 LB/FT MIN.).

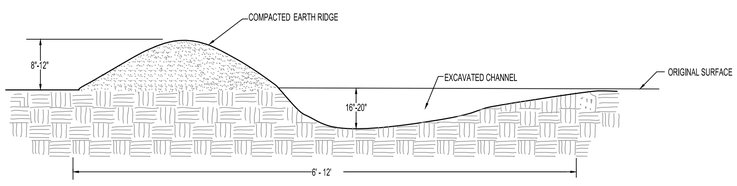
NOTES:
1. THE WOVEN WIRE FENCING SHALL BE FASTENED TO THE UPSTREAM SIDE OF POSTS BY STAPLES OR WIRE TIES.
2. GEOTEXTILE FABRIC SHALL BE SECURELY FASTENED TO THE WOVEN WIRE FENCING.

MAINTENANCE SCHEDULE:
REMOVE SEDIMENT DEPOSITS WHEN THEY REACH A DEPTH OF 15" OR 1/2 THE HEIGHT OF THE FENCE AS INSTALLED TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. SHOULD THE FABRIC OF SILT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

SB Silt Fence - Type A

N.T.S.

NOTE:
1.STABLE OUTLETS SHALL BE PROVIDED FOR EACH DIVERSION.



Di Temporary Diversion Berm

N.T.S.

2

SEE SHEET C7.6 FOR
JUNCTION BOX DETAIL - STR #2J

LBYD
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Birmingham, Alabama
Atlanta, Georgia
Huntsville, Alabama
Tampa Bay, Florida
www.lbyd.com

LBYD Project Number
302-10-002A

LBYD, Inc.
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ALABAMA REGISTERED No. 26754 PROFESSIONAL ENGINEER
7/10/2012

HUNTSVILLE
The Star of Alabama

DETAILS

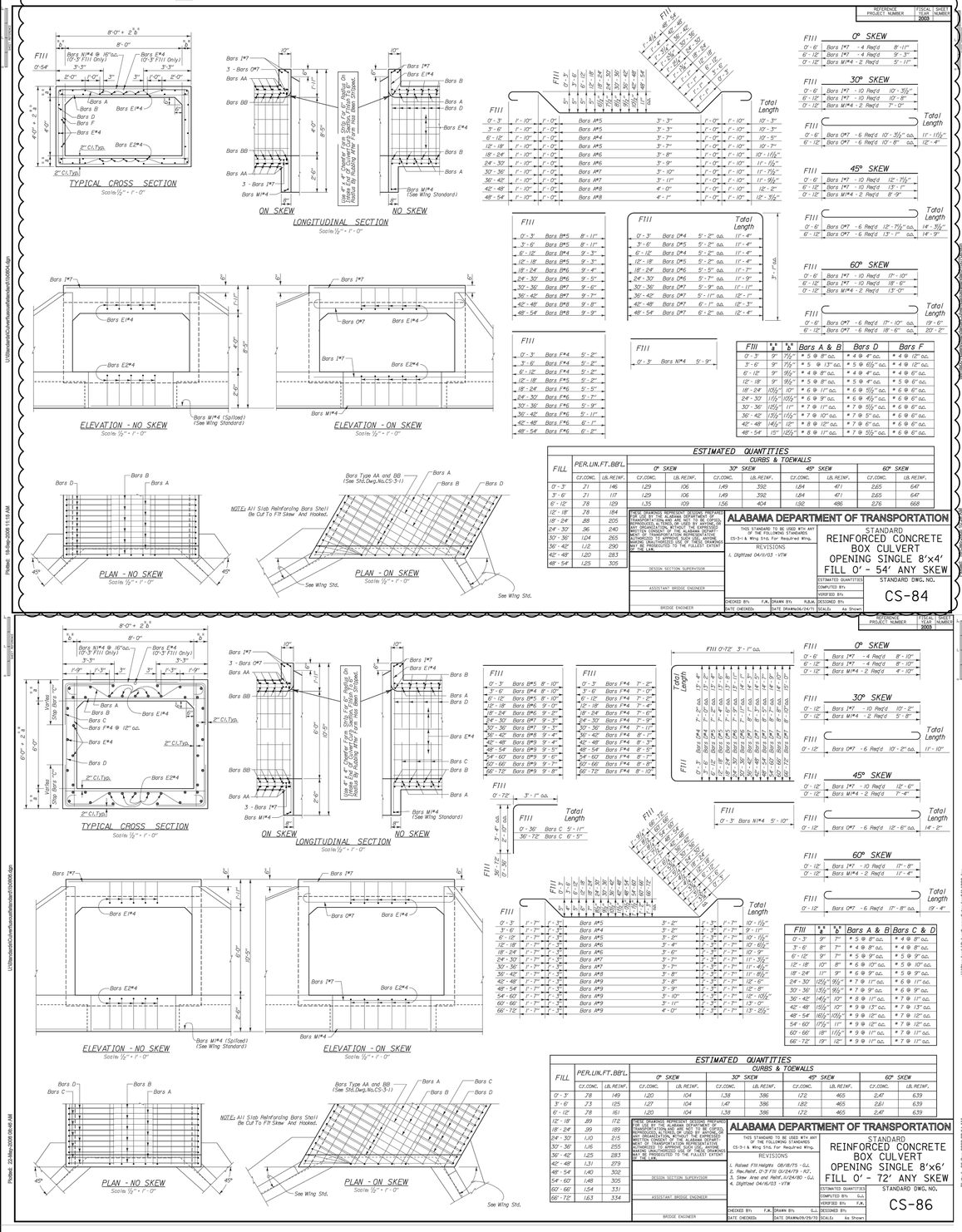
REDSTONE GATEWAY - PACKAGE I

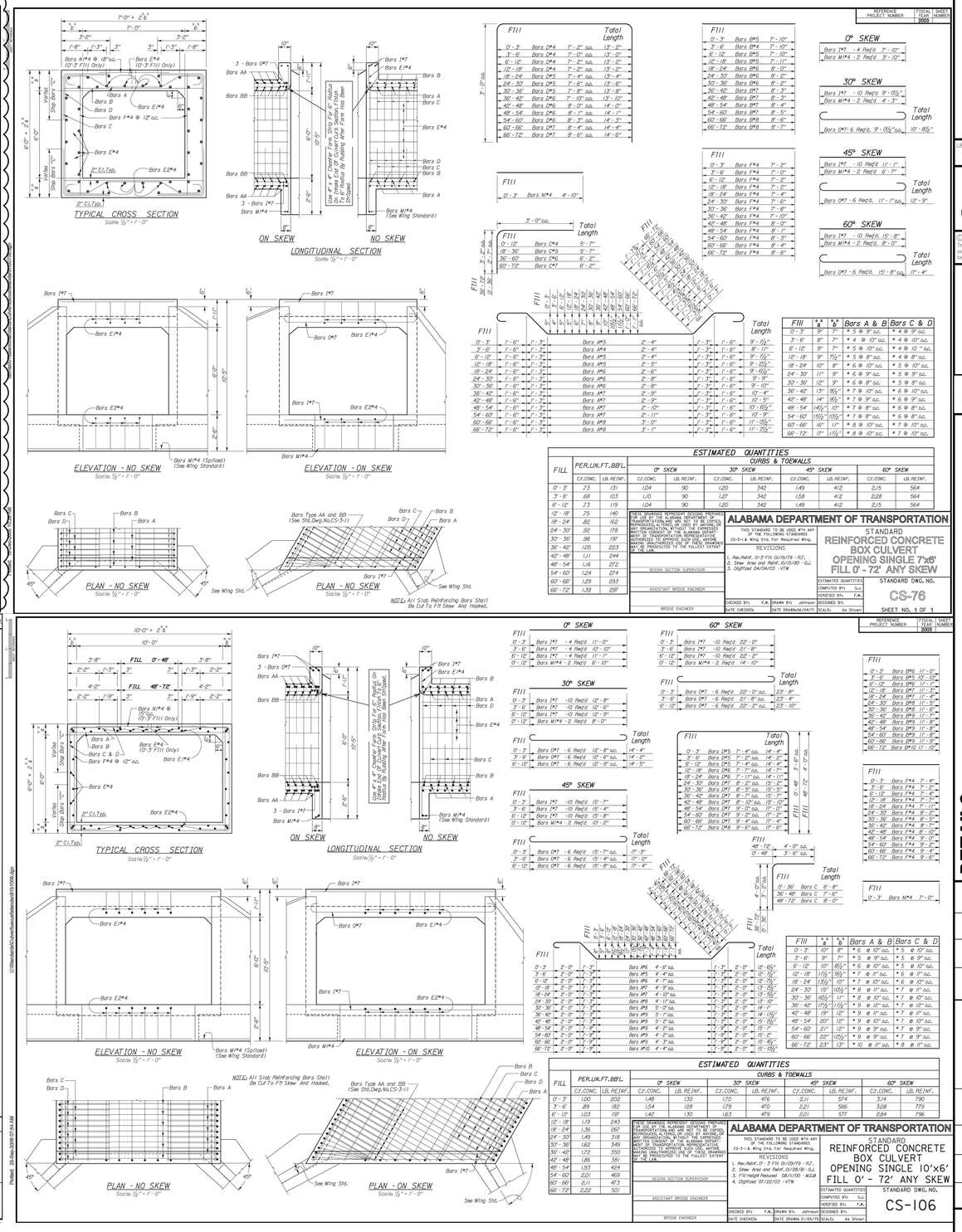
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION	TRAFFIC	REAL ESTATE	CONT. REVIEW	PE	DRAINAGE
2	7/10/12	TBE	TAR	Addendum #5					
1	6/29/12	TBE	TAR	ADDENDUM #1					

DRAWN: TBE
CHECKED: RAN
DATE: July 8, 2012

C7.3





SPECIAL NOTE:

1. NO WEEP HOLES SHALL BE INSTALLED IN BOX CULVERTS.

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HUNTSVILLE
The Star of Alabama

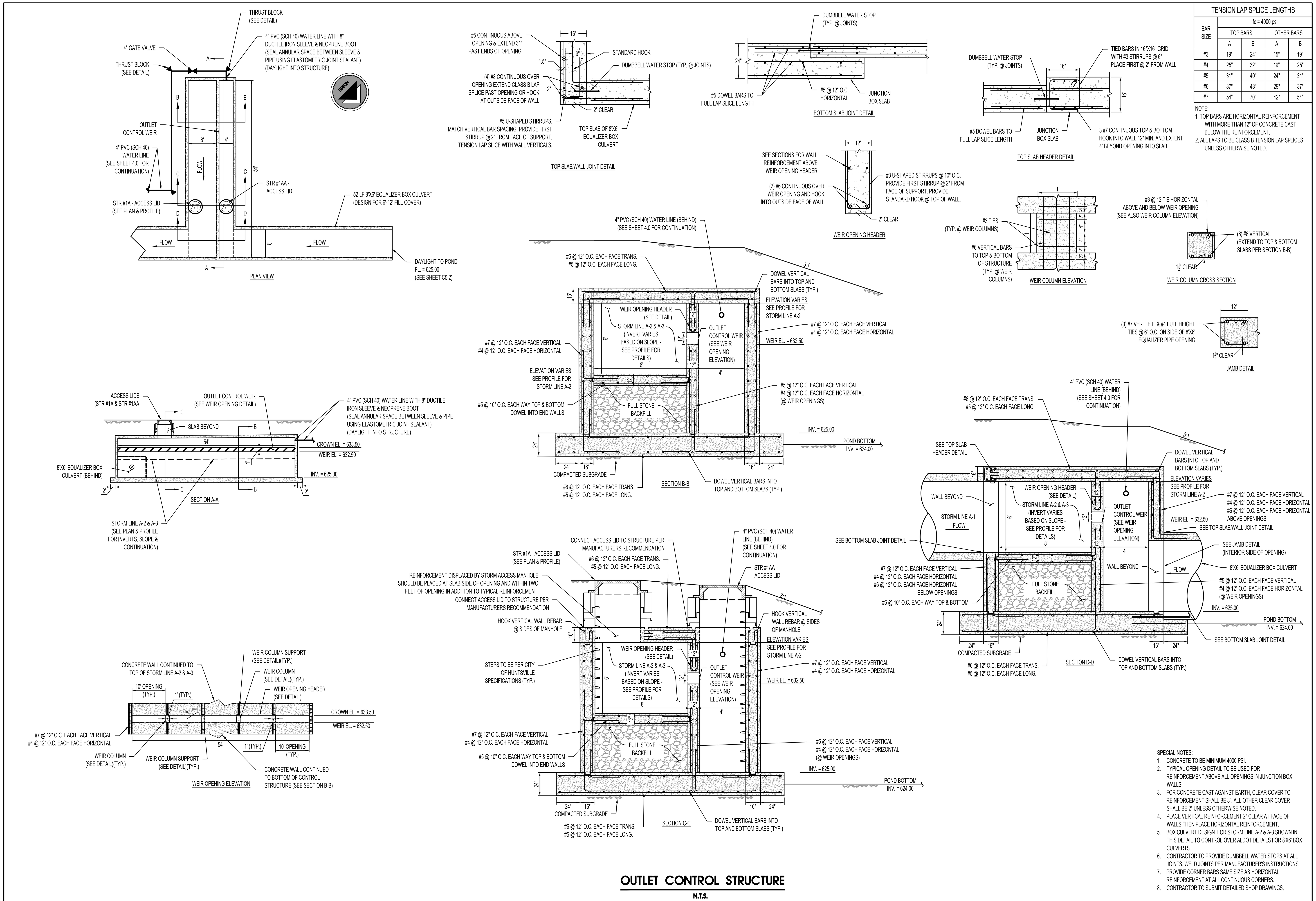
DETAILS
REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION	DATE
1	7/10/12	TBE	TAR	Addendum #5	July 8, 2012
				PLAN	
				DRAINAGE	
				PE	
				REAL ESTATE	
				CONTROL PLAN	

DRAWN: TBE

C7.4

23 OF 25



TENSION LAP SPLICE LENGTHS				
BAR SIZE	fc = 4000 psi			
	TOP BARS		OTHER BARS	
	A	B	A	B
#3	19"	24"	15"	19"
#4	25"	32"	19"	25"
#5	31"	40"	24"	31"
#6	37"	48"	29"	37"
#7	54"	70"	42"	54"

NOTE:
1. TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 12" OF CONCRETE CAST BELOW THE REINFORCEMENT.
2. ALL LAPS TO BE CLASS B TENSION LAP SPLICES UNLESS OTHERWISE NOTED.

SPECIAL NOTES:
1. CONCRETE TO BE MINIMUM 4000 PSI.
2. TYPICAL OPENING DETAIL TO BE USED FOR REINFORCEMENT ABOVE ALL OPENINGS IN JUNCTION BOX WALLS.
3. FOR CONCRETE CAST AGAINST EARTH, CLEAR COVER TO REINFORCEMENT SHALL BE 3". ALL OTHER CLEAR COVER SHALL BE 2" UNLESS OTHERWISE NOTED.
4. PLACE VERTICAL REINFORCEMENT 2" CLEAR AT FACE OF WALLS THEN PLACE HORIZONTAL REINFORCEMENT.
5. BOX CULVERT DESIGN FOR STORM LINE A-2 & A-3 SHOWN IN THIS DETAIL TO CONTROL OVER ALDOT DETAILS FOR 8'X6' BOX CULVERTS.
6. CONTRACTOR TO PROVIDE DUMBBELL WATER STOPS AT ALL JOINTS. WELD JOINTS PER MANUFACTURER'S INSTRUCTIONS.
7. PROVIDE CORNER BARS SAME SIZE AS HORIZONTAL REINFORCEMENT AT ALL CONTINUOUS CORNERS.
8. CONTRACTOR TO SUBMIT DETAILED SHOP DRAWINGS.

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ALABAMA REGISTERED No. 26754 PROFESSIONAL ENGINEER TIMOTHY A. ROBERTS
7/10/2012

HUNTSVILLE
The Star of Alabama

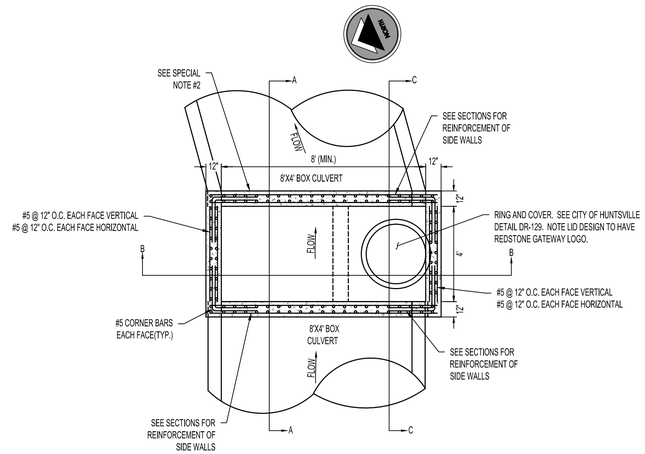
DETAILS

REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

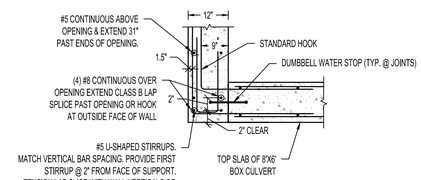
REV	DATE	DRAWN	CHECKED	DESCRIPTION
1	7/10/12	TBE	TAR	Addendum #5

DRAINAGE | PE | COH REVIEW | REAL ESTATE | TRAFFIC

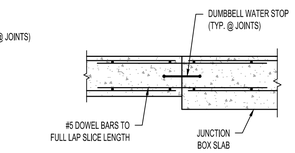
DATE: June 19, 2012
CHECKED: RAN
DRAWN: TBE



PLAN VIEW



TOP SLAB/WALLS JOINT DETAIL



BOTTOM SLAB JOINT DETAIL

TENSION LAP SPLICE LENGTHS				
BAR SIZE	fc = 4000 psi			
	TOP BARS		OTHER BARS	
	A	B	A	B
#3	19"	24"	15"	19"
#4	25"	32"	19"	25"
#5	31"	40"	24"	31"
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NOTE:
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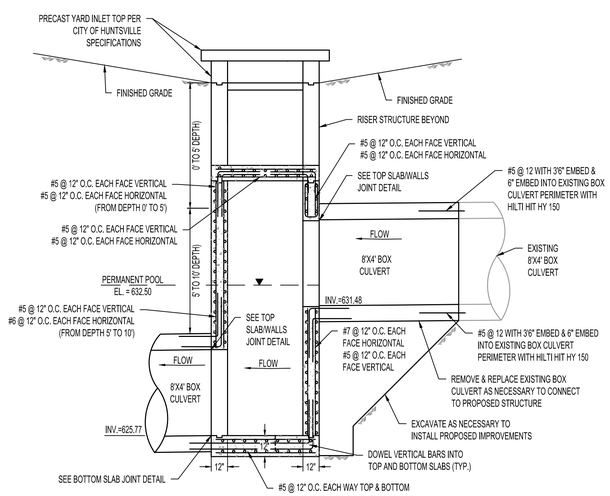
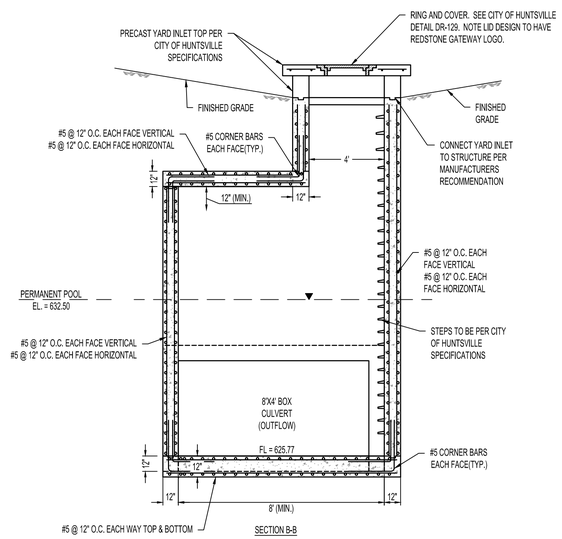
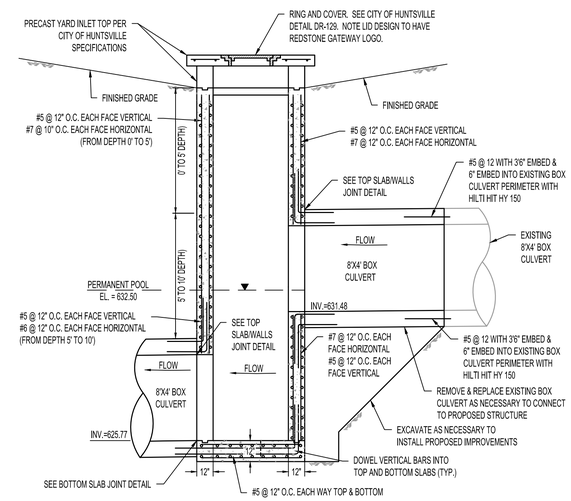


SECTION A-A



SECTION B-B



SECTION C-C

JUNCTION BOX DETAIL-STR #2J

N.T.S.

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7/10/2012

HUNTSVILLE
The Star of Alabama

DETAILS

REDSTONE GATEWAY - PACKAGE I
LAKE F
CITY OF HUNTSVILLE
HUNTSVILLE, ALABAMA

REV	DATE	DRAWN	CHECKED	DESCRIPTION	DATE	TRAFFIC	REAL ESTATE	PE	DRAINAGE
1	7/10/12	TBE	TAR	Addendum #3					

DRAWN: TBE
CHECKED: RAN
DATE: June 19, 2012
CITY REVIEW

C7.6
25 OF 25