

W-140 Channel Improvements CIP Number T-1734

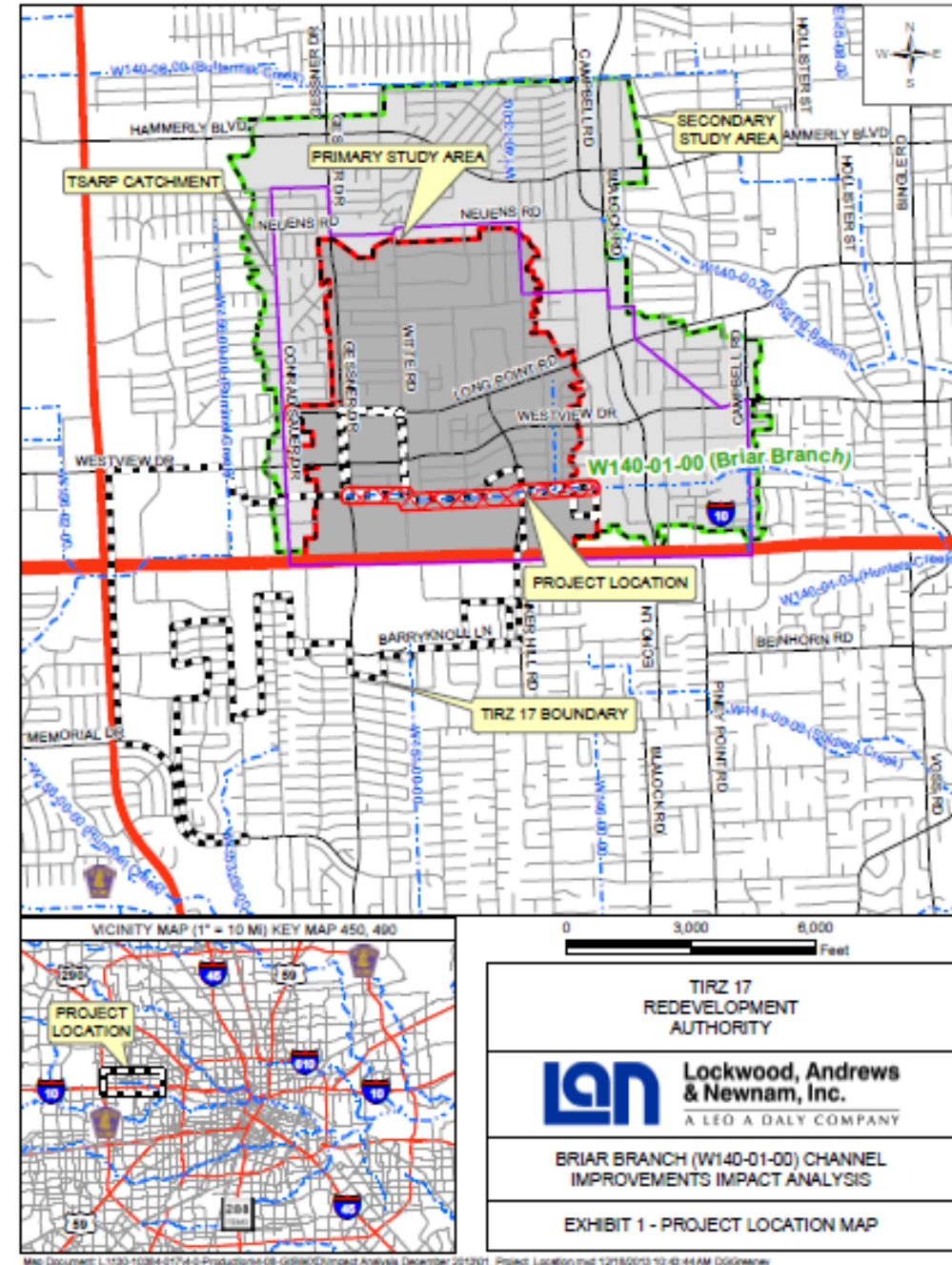


Presented to the Board of Directors

February 25, 2014

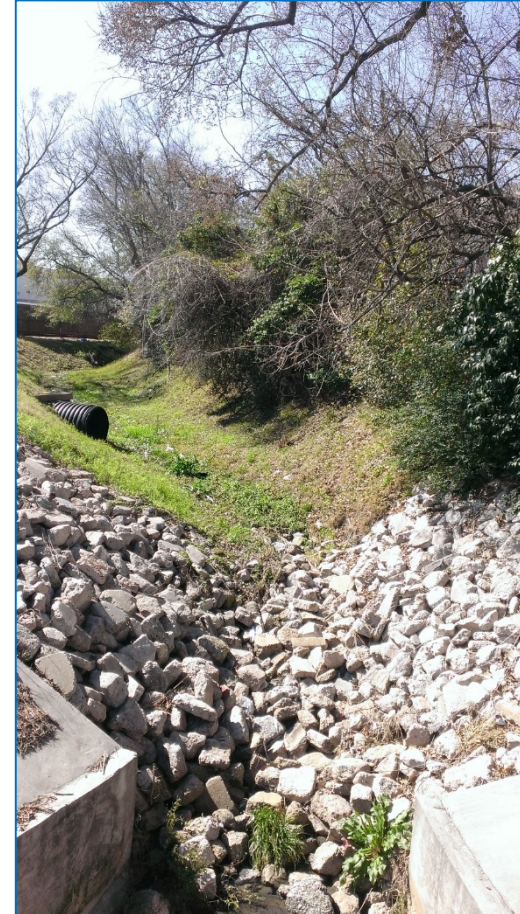
W-140 Channel Improvements

- \$ 13 million infrastructure project
- 18 month construction schedule
- 15 acre feet of new detention
- 10 year flood event design
- 66 structures saved from flooding
- +/- 6000 LF new channel construction
- Extends from Gessner to basin



Existing Conditions

- Channel length – 5,800 feet
- Channel volume – 15 acre feet
- Avg. cross sectional area – 102 SF
- Maintenance challenges – High



Existing Conditions – Gessner Facing East



Existing Conditions – Witte Road Facing West



Existing Conditions – Witte Road Facing East



Existing Conditions – Bunker Hill Facing West



Existing Conditions – Bunker Hill Facing East

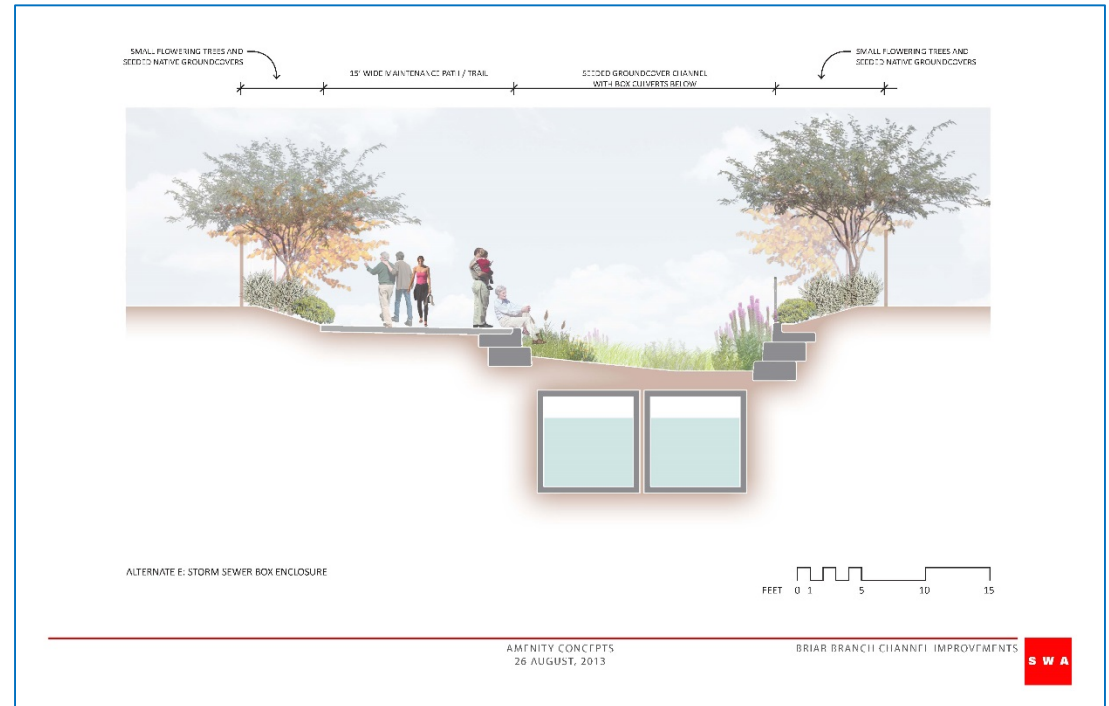


Existing Conditions – Basin Facing West

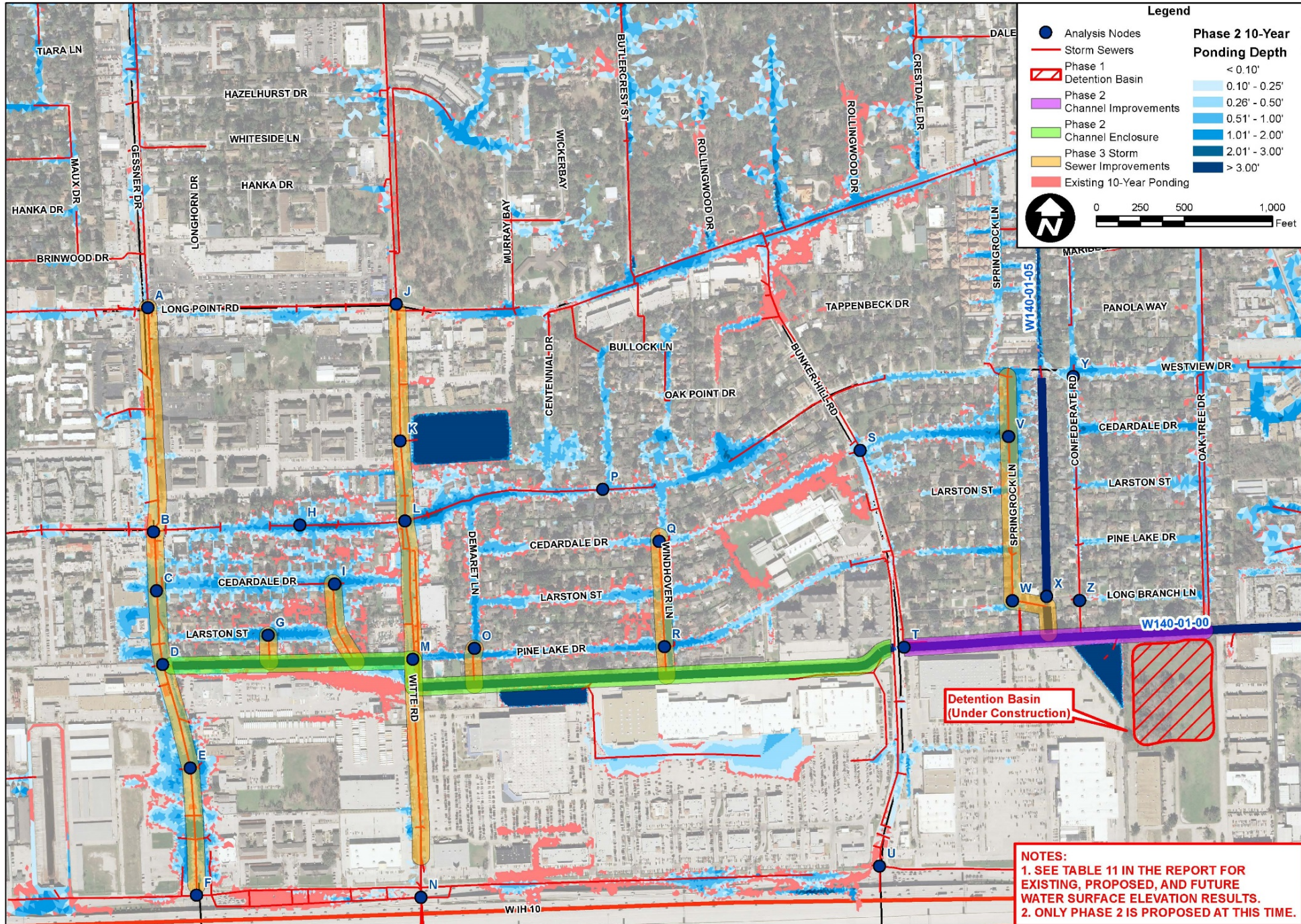


Improved Conditions

- 30 acre feet
- Preliminary Design – LAN
- Detailed Design – Klotz
- Enclosed box section
 - Gessner to Bunker Hill
 - Linear park
 - Low maintenance
- Open channel section
 - Bunker Hill to basin



Map Document: L:\130-10384-0174-0-Production\4-08-GIS\MXD\Impact Analysis December 2013\07_Prop_Phase 2_Inundation Reduction Map.mxd 12/31/2013 10:22:43 AM DGGreaney



Legend

- Analysis Nodes
- Storm Sewers
- ▨ Detention Basin
- Phase 1
- Phase 2
- Phase 2 Channel Enclosure
- Phase 3 Storm Sewer Improvements
- Existing 10-Year Ponding

Phase 2 10-Year Ponding Depth

- < 0.10'
- 0.10' - 0.25'
- 0.26' - 0.50'
- 0.51' - 1.00'
- 1.01' - 2.00'
- 2.01' - 3.00'
- > 3.00'

0 250 500 1,000 Feet

REV	DESCRIPTION	DATE	APPR

PROPOSED (PHASE 2) 10-YEAR INUNDATION REDUCTION MAP

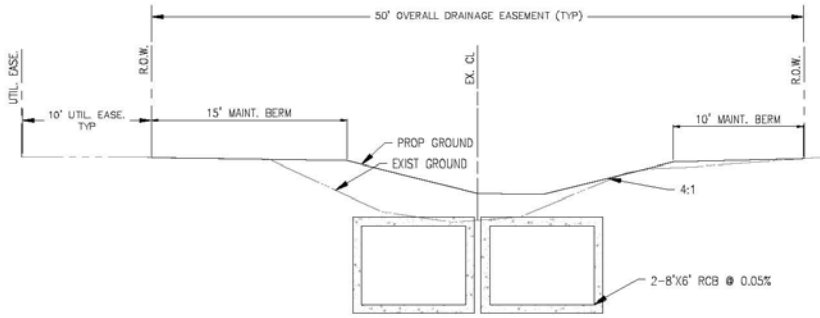
BRIAR BRANCH (W140-01-00) CHANNEL IMPROVEMENTS IMPACT ANALYSIS

PREPARED: CPF
 CHECKED: BRW
 APPROVED: DST

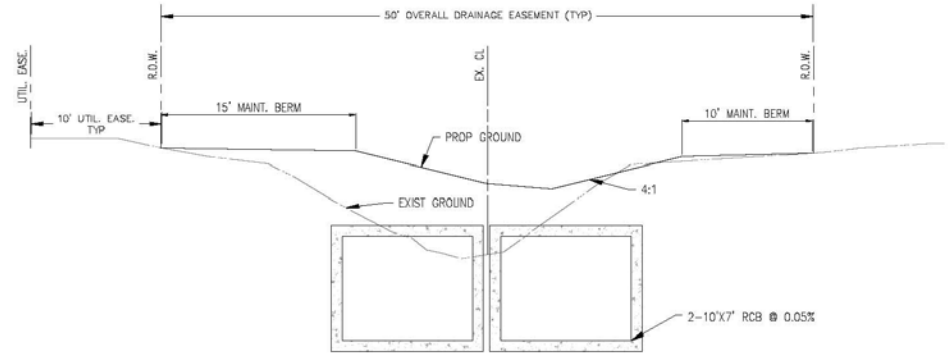


NOTES:
 1. SEE TABLE 11 IN THE REPORT FOR EXISTING, PROPOSED, AND FUTURE WATER SURFACE ELEVATION RESULTS.
 2. ONLY PHASE 2 IS PROPOSED AT THIS TIME.

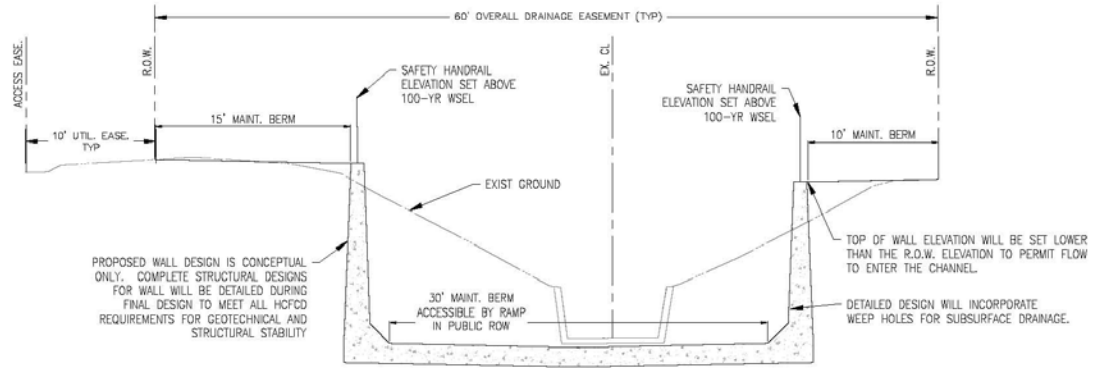
DATE: DEC 2013
 SCALE: AS NOTED
 EXHIBIT NUMBER
7 OF 13



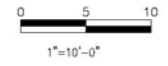
SECTION 1
 GESSNER RD TO WITTE RD
 W140-01-00 CHANNEL
 PROP CHANNEL AREA = 115 SF
 EXIST CHANNEL AREA = 55 SF




SECTION 2
 WITTE RD TO BUNKER HILL RD
 W140-01-00 CHANNEL
 PROP CHANNEL AREA = 162 SF
 EXIST CHANNEL AREA = 120 SF



SECTION 3
 BUNKER HILL RD TO POND
 W140-01-00 CHANNEL
 PROP CHANNEL AREA = 430 SF
 EXIST CHANNEL AREA = 220 SF



**PRELIMINARY
 NOT FOR
 CONSTRUCTION**

MEMORIAL CITY REDEVELOPMENT AUTHORITY		
 Lockwood, Andrews & Newnam, Inc. <small>A LEO A DALY COMPANY</small>		
BRIAR BRANCH (W140-01-00) CHANNEL IMPROVEMENTS EXHIBIT 6 PROPOSED BRIAR BRANCH TYPICAL SECTIONS		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
WATER	WASTEWATER	TRAFFIC
VE. & BRIDGE	STORMWATER	DMG
FILE NO.:	FACILITY:	
DRAWING SCALE:	CITY DWG NO.:	
VERT:		
HORIZ:		
SHEET:		
6 OF 13		

C:\P\ALCONCSE\OFFICE\PROJECTS\W140-01-00\ALTERNATIVES_ANALYSIS_SECTION\DWG_12/25/2013_3:07:02 PM_french.dwg

SMALL FLOWERING TREES AND
SEEDED NATIVE GROUNDCOVERS

15' WIDE MAINTENANCE PATH / TRAIL

SEEDED GROUNDCOVER CHANNEL
WITH BOX CULVERTS BELOW

SMALL FLOWERING TREES AND
SEEDED NATIVE GROUNDCOVERS



ALTERNATE E: STORM SEWER BOX ENCLOSURE

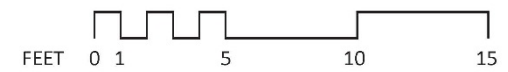
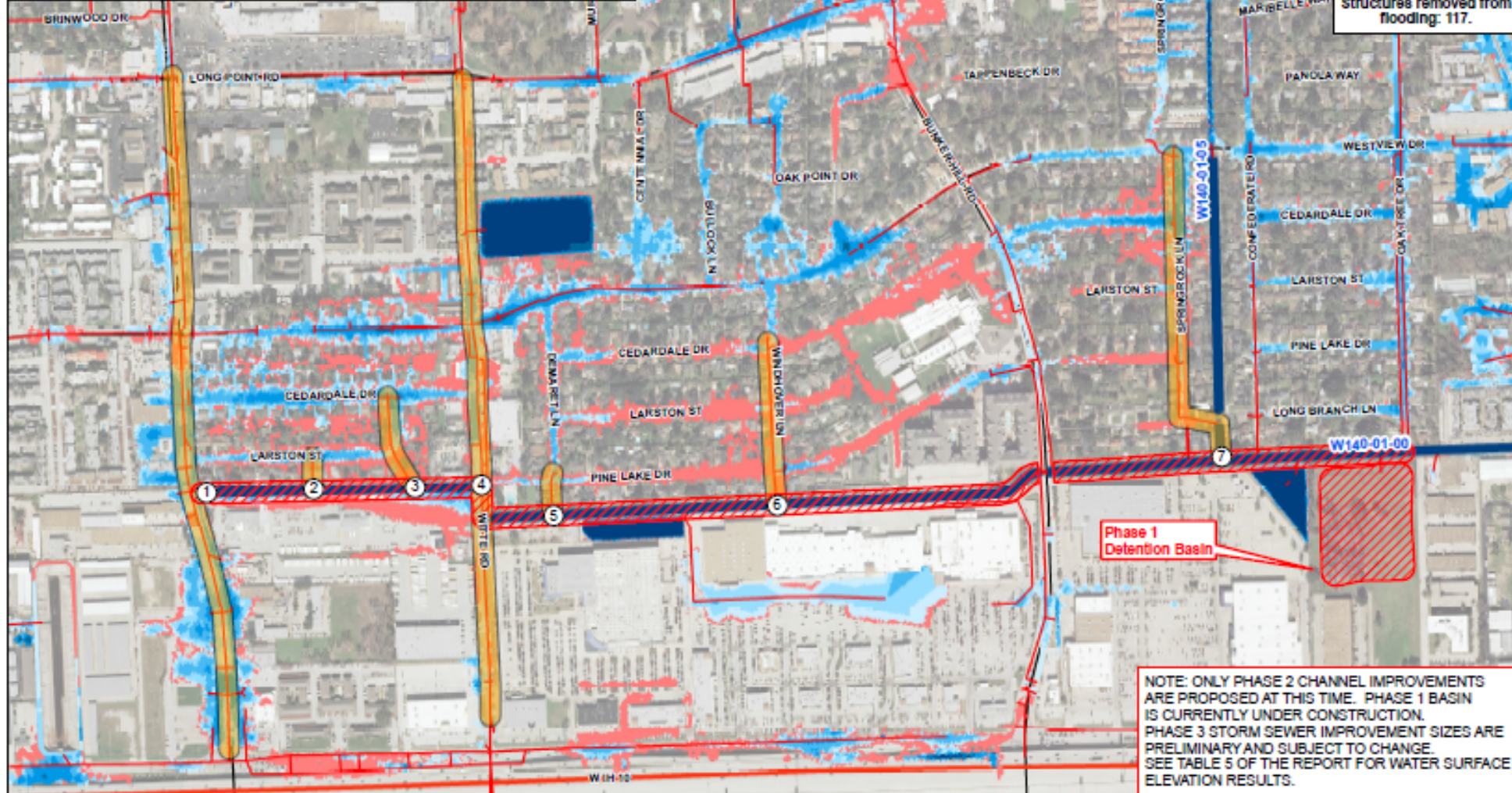


Table 10: Future Phase 3 Storm Sewer Improvement Sizes and Results

#	Location	Exist Size	Prop Size	Exist 10yr Flow (CFS)	Future Phase 3 10yr Flow (CFS)	Exist 100yr Flow (CFS)	Future Phase 3 100yr Flow (CFS)
1	Gessner	36"	36"	73.0	49.2	78.3	71.5
2	Larston	15"	42"	7.6	37.0	7.7	48.7
3	Cedardale	36"	42"	24.8	40.6	27.9	41.5
4	Witte	1-8"x5'	1-8"x5' and 1-5"x5'	143.1	269.3	151.9	273.2
5	Demeret	24"	36"	12.0	38.6	11.8	52.2
6	Windhover	2-24"	1-42"	29.9	81.3	30.0	121.3
7	Springrock	36"	1-8"x5'	85.2	167.2	191.4	289.2



Legend

- Existing Storm Sewers
- Existing Ponding - 10yr
- Phase 1 and 2 Improvements
- Future Phase 3 Storm Sewer Impvs
- Future Phase 3 10-Year Ponding
- < 0.10'
- 0.10' - 0.25'
- 0.26' - 0.50'
- 0.51' - 1.00'
- 1.01' - 2.00'
- 2.01' - 3.00'
- > 3.00'

0 250 500 1,000 Feet

Structures removed from flooding: 117.

REV	DESCRIPTION	DATE	APP'D

FUTURE STORM SEWER IMPROVEMENTS (PHASE 3) 10-YEAR INUNDATION REDUCTION MAP

BRIAR BRANCH (W140-01-00) CHANNEL IMPROVEMENTS IMPACT ANALYSIS

PREPARED: CWF	CHECKED: BRN	APPROVED: DST
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NOTE: ONLY PHASE 2 CHANNEL IMPROVEMENTS ARE PROPOSED AT THIS TIME. PHASE 1 BASIN IS CURRENTLY UNDER CONSTRUCTION. PHASE 3 STORM SEWER IMPROVEMENT SIZES ARE PRELIMINARY AND SUBJECT TO CHANGE. SEE TABLE 5 OF THE REPORT FOR WATER SURFACE ELEVATION RESULTS.

Water Surface Elevation Reductions


	10 – Year		100 – Year	
	WSEL Reduction In Channel	WSEL Reduction In Neighborhood	WSEL Reduction In Channel	WSEL Reduction In Neighborhood
Phase 1	-0.7	-1.0	-0.6	-0.4
Phase 2	-2.5	-1.1	-2.1	-0.7
Phase 3	-2.2	-2.8	-1.7	-1.1

Authority Letters from USACE and HCFCD

Appendix B
US Army Corps of Engineers Jurisdictional Determination Letter

Briar Branch Channel Improvements
Impact Analysis Report (Unit W140-01-00)

MAR 06 2013



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON TEXAS 77553-1229
February 20, 2013

Compliance Section

SUBJECT: SWG 2012-00174; TIRZ 17 Redevelopment Authority, Jurisdictional Determination, Proposed Drainage Improvement Project, Located Along a Drainage Ditch South of the Intersection of Bunker Hill Road and Long Branch Lane, City of Houston, Harris County, Texas

Muhammad Ali, P.E.
TIRZ 17 Redevelopment Authority
2925 Briarpark Drive, Suite 400
Houston, Texas 77042-3720

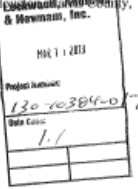
Dear Mr. Ali:

This letter is in response to your request for a jurisdictional determination received February 12, 2012, for the proposed drainage improvement project on behalf of TIRZ 17 Redevelopment Authority. The project is located along a drainage ditch south of the intersection of Bunker Hill Road and Long Branch Lane, City of Houston, Harris County, Texas.

Based on our desk review and the June 4, 2012 site visit, we determined that the project site (see attached map) does not contain waters of the United States. Therefore, any work, structures, or the discharge of fill material on the project site is not subject to Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act (CWA) and does not require a Department of the Army permit.


This determination has been conducted to identify the limits of the Corps' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

This letter contains an approved jurisdictional determination for your subject site, which is valid for 5 years from the date of this letter unless new information warrants a revision prior to the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeals Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the Southwest Division Office at the following address:



Page 1 of 5

December 27, 2013


HARRIS COUNTY
FLOOD CONTROL DISTRICT
8903 Northwest Freeway
Houston, Texas 77062
713-694-4000
www.hcfd.org

Mr. Derek St. John, P.E., CFM
Lockwood, Andrews & Newnam, Inc.
2925 Briarpark, Suite 400
Houston, TX 77042

Re: W140-01-00 Modification by TIRZ 17

Dear Mr. St. John:

This letter is in response to e-mail correspondence of December 12, 2013 wherein you provided me a summary of three options you have been discussing with both our Watershed Management Department and also our Urban Channel Design planning committee. As I understand your concern, you are hesitant to proceed with detailed impact analysis and any form of a project development report without some confirmation from Flood Control District that the hydraulic section you are presenting would be acceptable for maintenance. Three options have been presented, being combinations of multiple box culverts and concrete open channel. You are, at this time, recommending multiple box culverts from Gessner Road to Bunker Hill Road and an open concrete vertical wall section from Bunker Hill Road to an existing detention basin owned by TIRZ 17. In that recommended section you have 12 ft. maintenance berms on either side of the box culverts and maintenance berms of 15 ft. and 10 ft. on either side of the concrete channel section.

The idea that the channel sections being proposed depart significantly from the sections outlined in the Flood Control District Policy, Criteria and Procedures Manual (PCPM) is driven by the fact that acquisition of additional right-of-way is prohibitively expensive and disruptive to the community. We concur with this fact. The maintenance access widths are the minimum acceptable for our equipment based on the conceptual channel sections proposed. We will not accept anything less. We do not have adequate information to yet determine if the proposed design section meets our requirements for structural stability and hydraulic capacity which are studies you should undertake and provide as part of the impact analysis you intend to perform (including appropriate supporting field investigations). Of the conceptual sections provided we do want to offer the following comments.

For any modification to one of our channel reaches where we would replace an earthen section (or partial box section) with a full enclosure or concrete vertical wall, we would first want to attempt to maximize the capacity within the right-of-way for obvious difficulties in expanding the section in the future (given our requirements for maintenance access). It appears your conceptual sections do that, but please confirm such to be the case. If this is a case where additional capacity could be achieved if additional mitigation were available, we would like to understand that and determine if there is a partnership role the Flood Control District should take based on the benefit to the community. Any partnership would be a function of funding and Commissioners Court approval.





A Division of Harris County Public Infrastructure Department

Preliminary Report Submitted on 12/31/2013

Briar Branch Channel Improvements
(Unit W140-01-00)

Impact Analysis Report

Prepared for:
Memorial City Redevelopment Authority



Lockwood, Andrews
& Newnam, Inc.
A LEO A DALY COMPANY




Texas Registered Engineering Firm
F-2614

December 31, 2013


Briar Branch Channel Improvements
(Units W140-01-00)

Preliminary Engineering Report

Prepared for:
Memorial City Redevelopment Authority



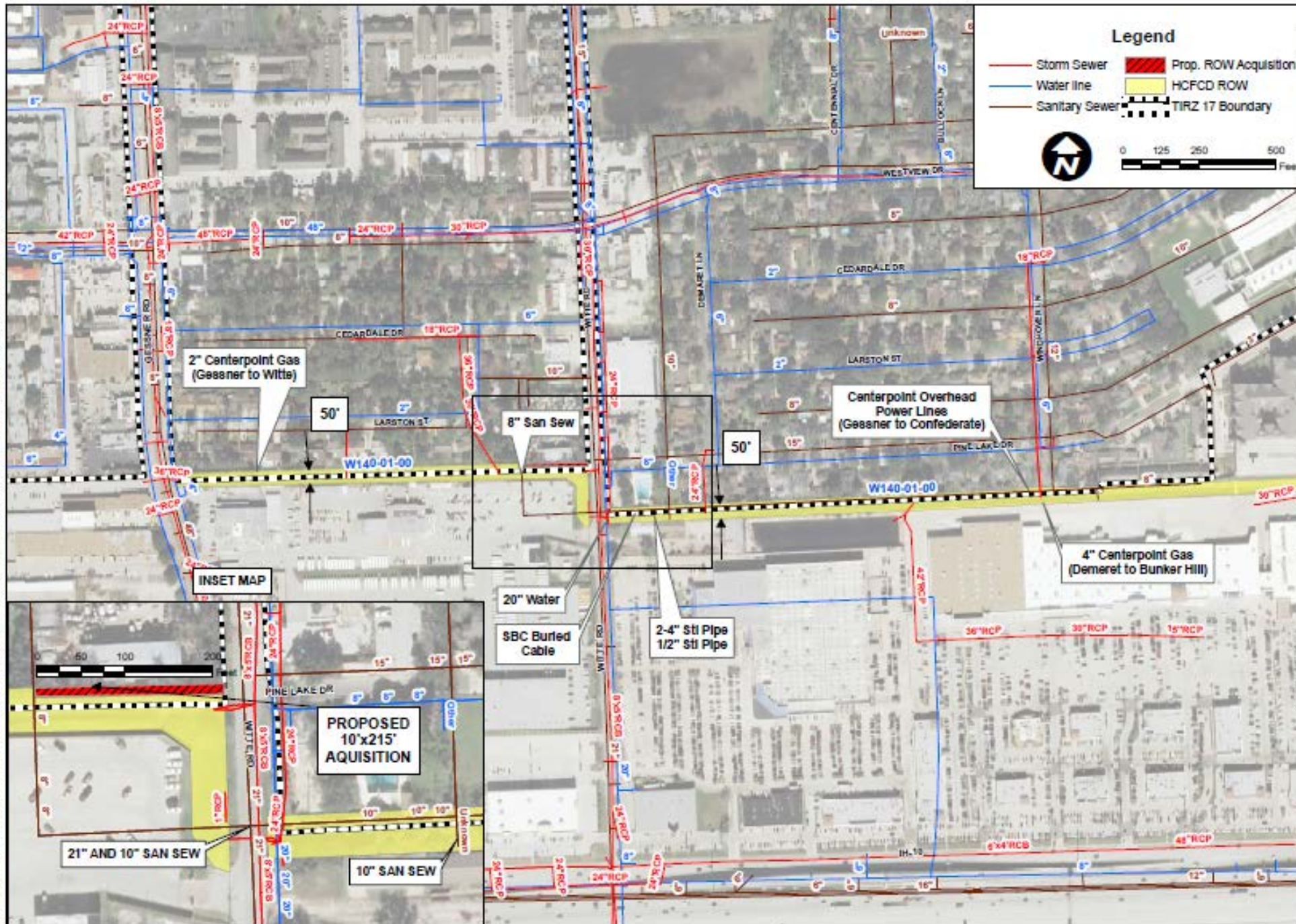
9/16/2013



Lockwood, Andrews
& Newnam, Inc.
A LEO A DALY COMPANY

Texas Registered Engineering Firm
F-2614

September 16, 2013



Legend

- Storm Sewer
- Water Line
- Sanitary Sewer
- Prop. ROW Acquisition
- HCPCD ROW
- TIRZ 17 Boundary

REV	DESCRIPTION	DATE

RIGHT-OF-WAY MAP		
PREPARED: DGG	CHECKED: BRW	APPROVED: DST
BRIAR BRANCH (W140-01-00) CHANNEL IMPROVEMENTS IMPACT ANALYSIS		

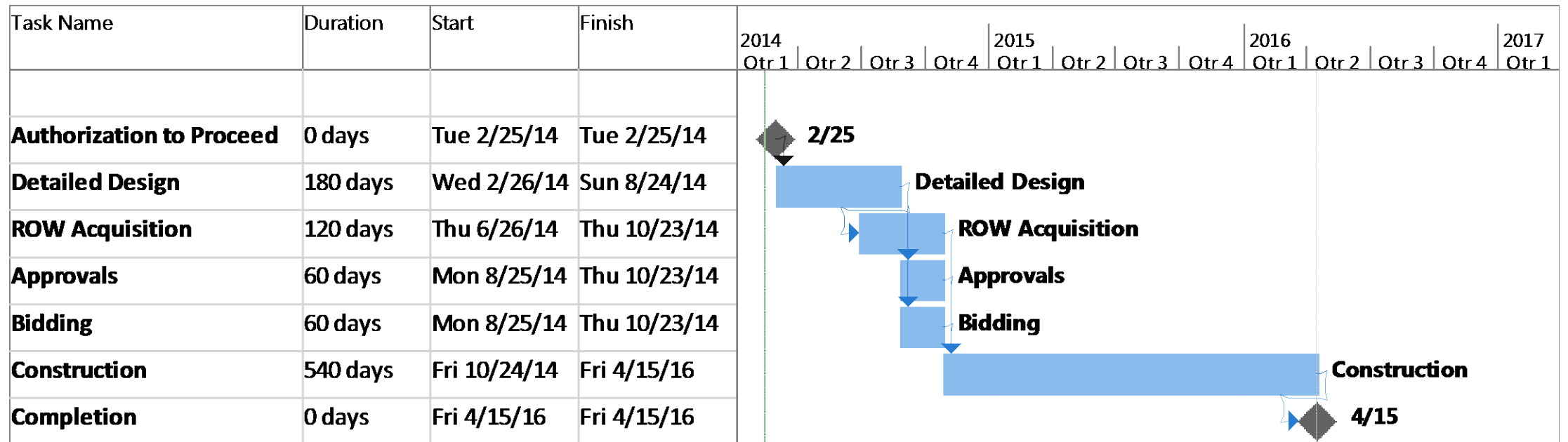


DATE: DEC 2013
 SCALE: AS NOTED
 EXHIBIT NUMBER
 10a of 13

Fiscal Year Budget Comparisons

Description	2013	2014	2015
Planning and Design	\$ 700,000	\$ 699,000	\$ 1,213,800
Acquisition	- 0 -	- 0 -	\$ 100,000
Construction	\$ 7,000,000	\$ 7,000,000	\$ 12,000,000
Other	- 0 -	\$ 100,000	- 0 -
Total	\$ 7,700,000	\$ 7,799,000	\$ 13,313,800

W-140 Channel Improvements Timeline



W-140 Channel Improvements CIP Number T-1734



Presented to the Board of Directors

February 25, 2014