JUNE 9, 2015

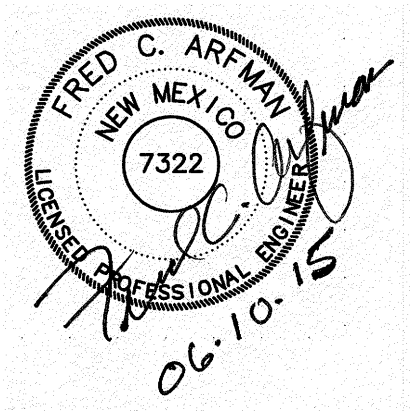
Supplemental Information for

for

TRACT 3-B
SANTA MONICA PLACE
DRAINAGE AND GRADING PLAN

I&A PROJECT NO. 2047

By



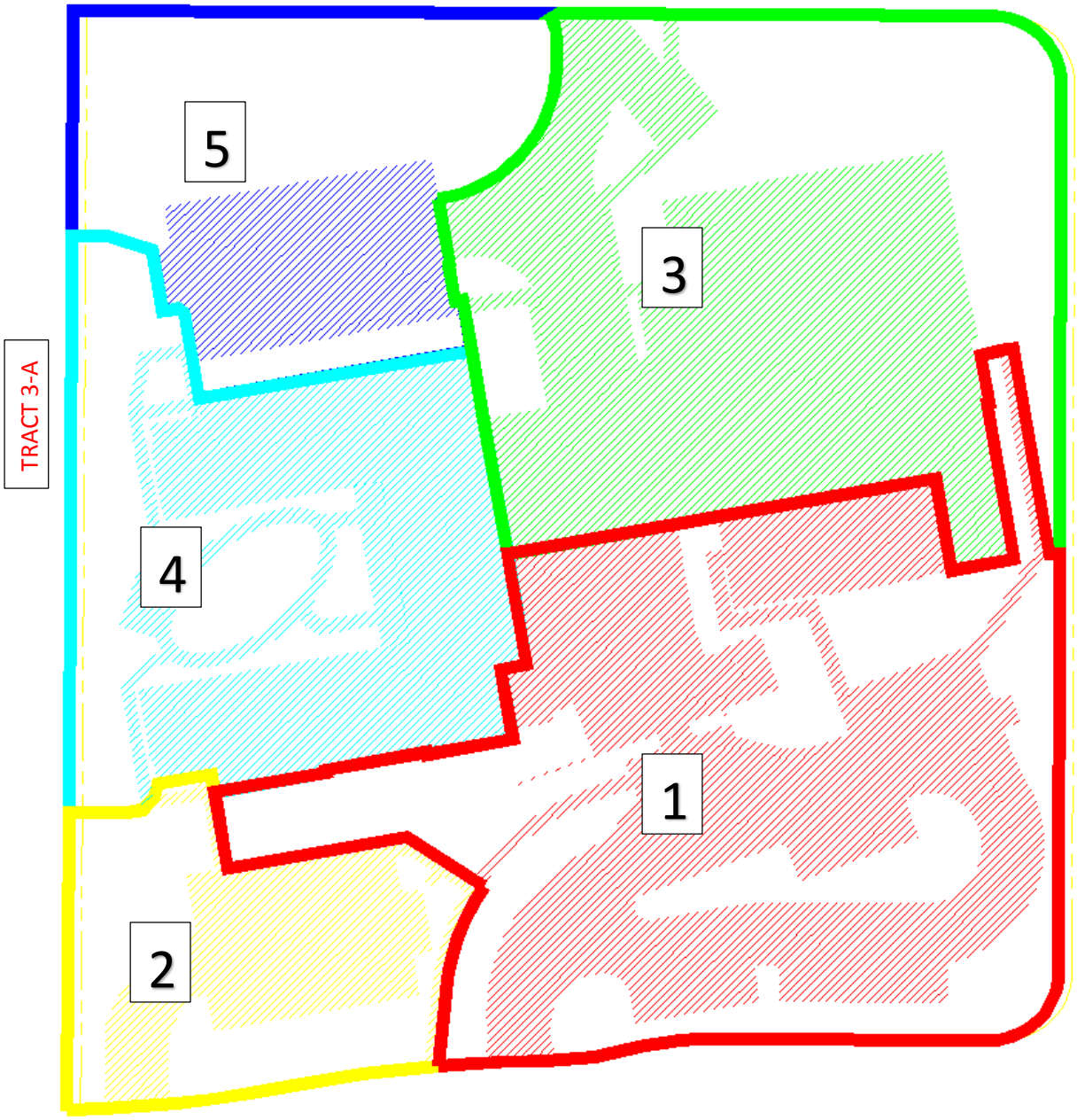
ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates

Thomas O. Isaacson, PE(RET.) & LS(RET.)
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

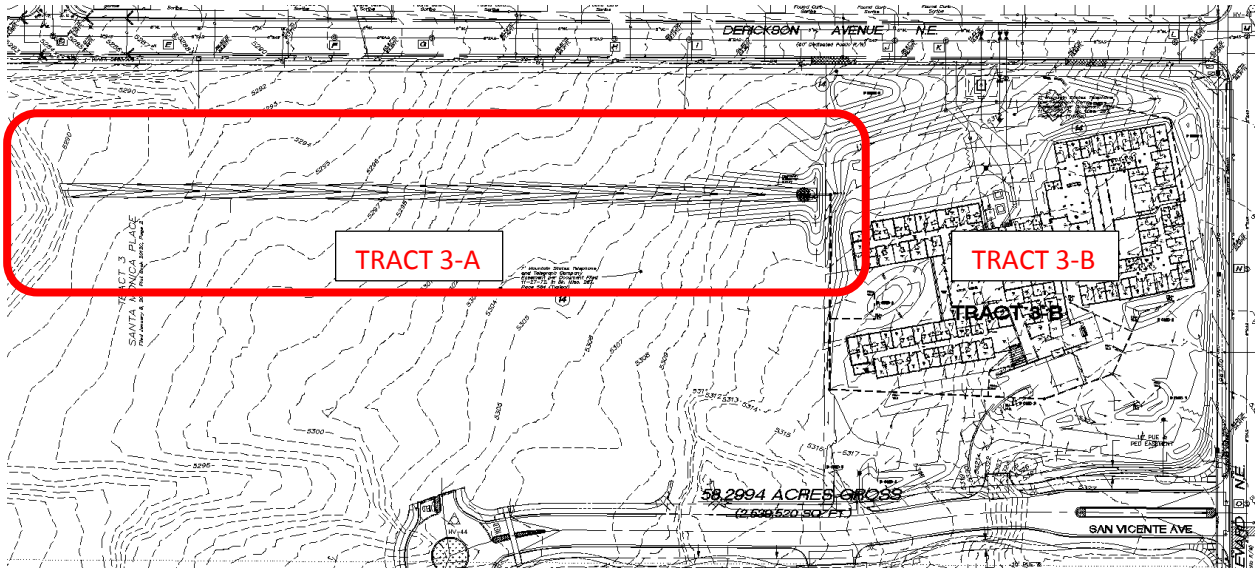
DRAINAGE BASINS

DRAINAGE BASINS WITH

IMPERVIOUS AREAS:



PERMISSION TO GRADE ON TRACT 3-A GRANTED BY PLAT



DRAINAGE EASEMENT NOTES

A. *There is an existing interim Cross Lot Drainage Easement granted by plat filed January 6, 2012 in Plat Book 2012C, Page 2 for the mutual benefit of the owners of Tracts 1 thru 4 until future development occurs. Tracts 1 thru 4 will discharge drainage to the existing drainage facilities/outfalls located at the intersection of Derickson and San Pedro as outlined in the Conceptual Drainage Report prepared by Isaacson & Arfman, P.A. dated 12–2–11. Owners/Developers of any of the tracts are allowed to grade interim drainage facilities such as grading, berming, ponding or outfall structures on adjacent undeveloped property and will be maintained by the benefiting tract owner until such time that future development (TBD) of the undeveloped property is complete and applicable interim facilities are no longer required. Notwithstanding anything herein to the contrary, the interim Cross Lot Drainage Easement may not be terminated without the approval of the City Engineer.*

Said Easement within Tracts 3 and 4, Santa Monice Place is VACATED by 14DRB–_____.

B. *A New Public and Private Interim Drainage Easement shall be granted by this plat over Tract 3–A, for the benefit of Tracts 3–B, 4–A and 4–B. Owners of said Tracts 3–B, 4–A and 4–B shall be allowed to grade Interim Drainage Facilities on Tract 3–A. Said Interim Drainage Facilities shall be maintained by the owner of Tract 3–A until such time that future development (TBD) of Tract 3–B is complete and applicable Interim Facilities are no longer required.*

DRAINAGE BASIN / FIRST FLUSH CALCULATIONS

BASIN NO. 1	DESCRIPTION	TO SOUTH STORM DRAIN

Area of basin flows = 62758 SF = 1.4 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.81 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 9455 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 6.0 cfs

A = 0%
B = 22%
C = 22%
D = 56%

FIRST FLUSH VOL. 996 CF

BASIN NO. 2	DESCRIPTION	TO SAN VICENTE AVE

Area of basin flows = 19099 SF = 0.4 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.76 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 2797 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 1.8 cfs

A = 0%
B = 24%
C = 24%
D = 52%

FIRST FLUSH VOL. 281 CF

BASIN NO. 3	DESCRIPTION	TO DERICKSON AVE. VIA ACCESS DRIVE

Area of basin flows = 53746 SF = 1.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.91 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 8546 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 5.3 cfs

A = 0%
B = 18%
C = 18%
D = 64%

FIRST FLUSH VOL. 975 CF

BASIN NO. 4	DESCRIPTION	TO WEST STORM DRAIN

Area of basin flows = 35828 SF = 0.8 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.88 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 5622 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 3.5 cfs

A = 0%
B = 19%
C = 19%
D = 62%

FIRST FLUSH VOL. 629 CF

BASIN NO. 5	DESCRIPTION	TO DERICKSON AVE. VIA SIDEWALK CULVERTS

Area of basin flows = 26901 SF = 0.6 Ac.

The following calculations are based on Treatment areas as shown in table to the right

LAND TREATMENT

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.51 in.

Sub-basin Volume of Runoff (see formula above)

V_{360} = 3377 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_P = 2.3 cfs

A = 0%
B = 34%
C = 34%
D = 32%

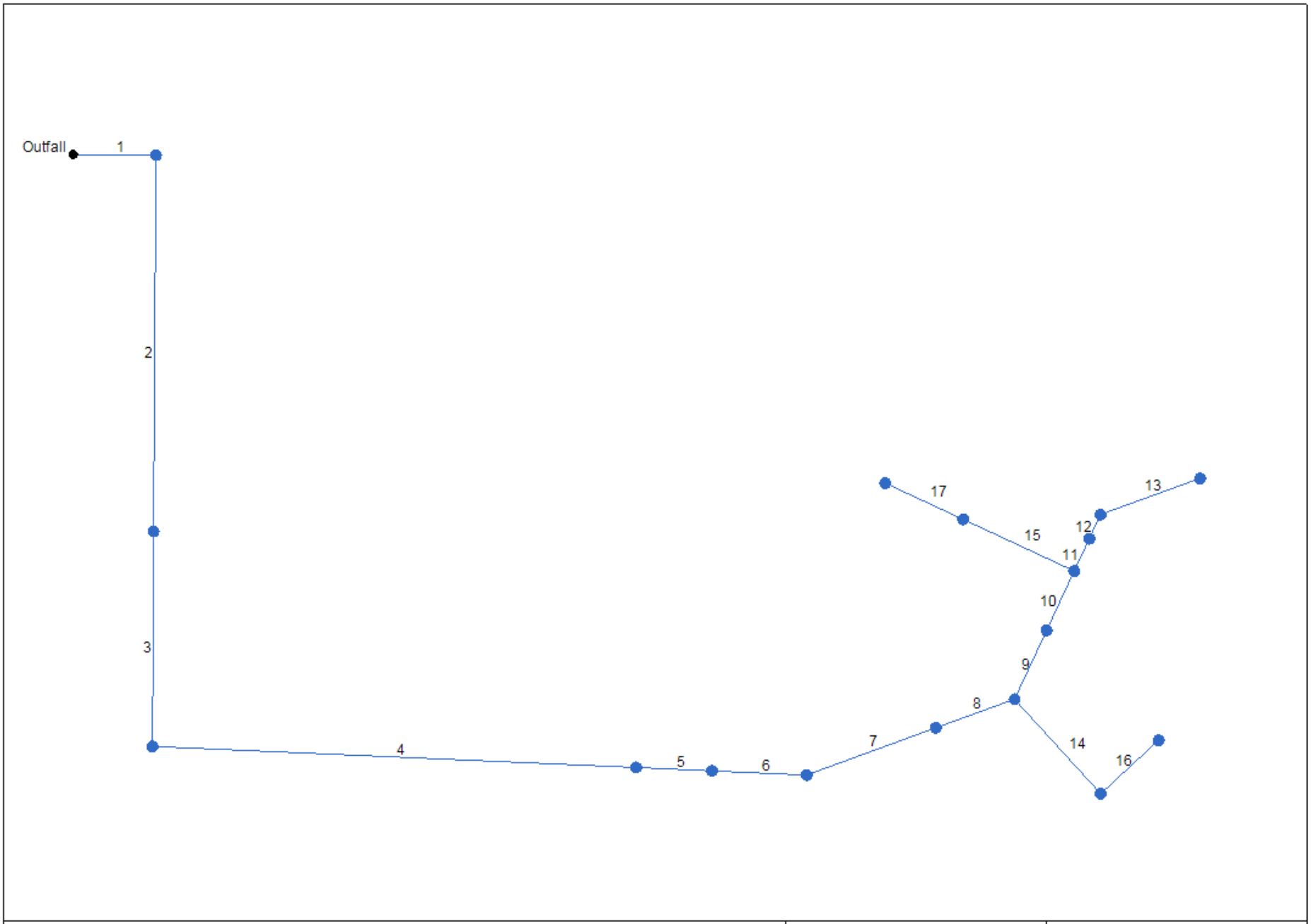
FIRST FLUSH VOL. 244 CF

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)                    - Ver. S4.01a, Rel: 01a      RUN DATE (MON/DAY/YR) =05/12/2015
INPUT FILE = m:\PROJECTS\2000-2099\2047\CALCS\2047DEV.DAT                              USER NO.= AHYMO_Temp_User:20122010

                                FROM  TO                    PEAK         RUNOFF              TIME TO    CFS      PAGE =   1
                    HYDROGRAPH   ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF     PEAK     PER
COMMAND       IDENTIFICATION    NO.  NO.      (SQ MI)      (CFS)        (AC-FT)    (INCHES)  (HOURS)    ACRE     NOTATION

*S*************************************************************************
*S           SANTA MONICA PLACE
*S           TRACT 3-B
*S           100-YEAR, 6-HOUR STORM
*S           2047DEV.DAT
*S
*S           BY BRYAN BOBRICK
*S           ISAACSON & ARFMAN, P.A.
*S           MAY, 2015
*S*************************************************************************
*S
*S    Rainfall distribution based on NOAA Atlas 14 maps
*S      Latitude=35.1625   Longitude=-106.5741
*S
*S*************************************************************************
START                                                                                                    TIME=      0.00
RAINFALL  TYPE= 1 NOAA 14                                                                                RAIN6=    2.410
*S      BASIN 1
COMPUTE NM HYD            S1   -     1       0.00225         5.21       0.194      1.61419    1.533    3.616 PER IMP=  56.00
*S      BASIN 2
COMPUTE NM HYD            S2   -     2       0.00069         1.57       0.057      1.56517    1.533    3.580 PER IMP=  52.00
*S      BASIN 3
COMPUTE NM HYD            S3   -     3       0.00193         4.62       0.176      1.71224    1.533    3.745 PER IMP=  64.00
*S      BASIN 4
COMPUTE NM HYD            S4   -     4       0.00129         3.06       0.116      1.68773    1.533    3.720 PER IMP=  62.00
*S      BASIN 5
COMPUTE NM HYD            S5   -     5       0.00096         2.01       0.068      1.32004    1.533    3.250 PER IMP=  32.00
FINISH
```

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan

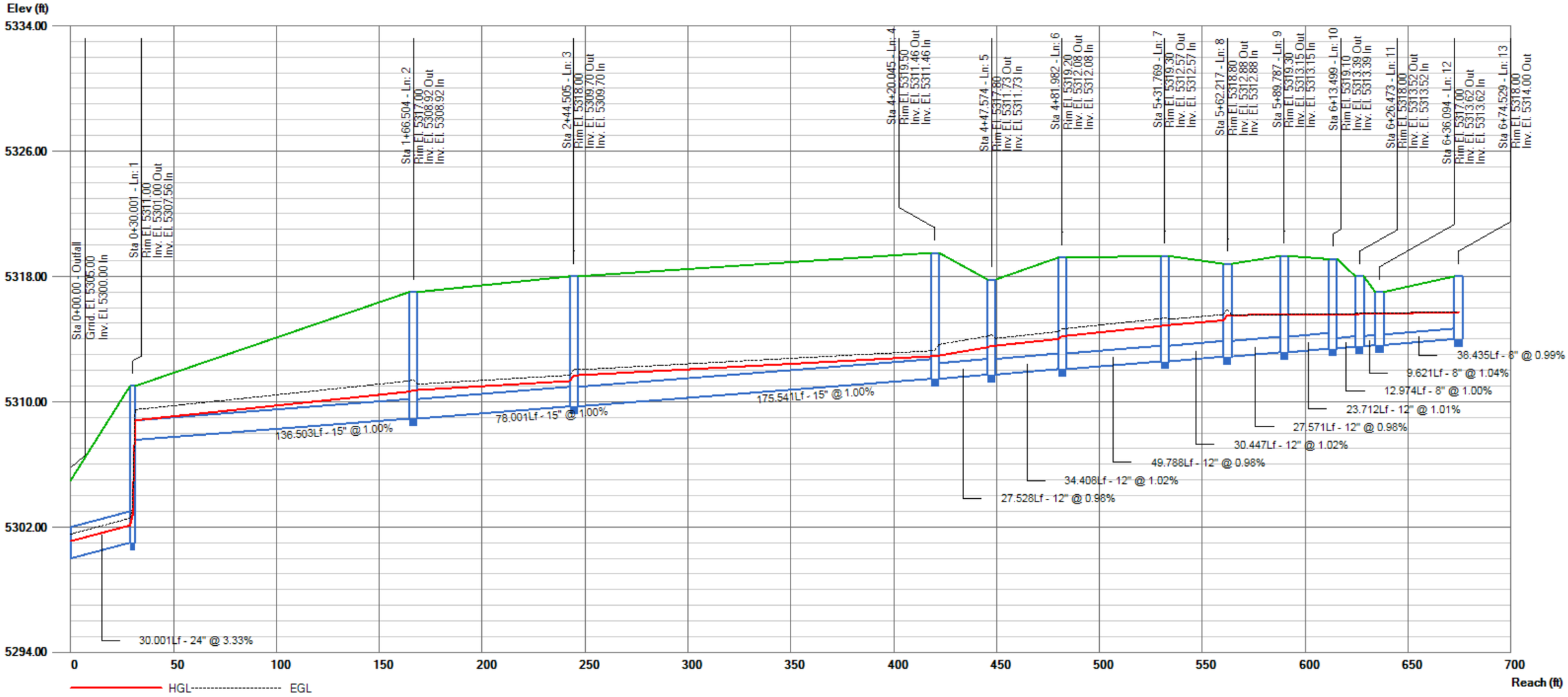


Project File: 2047 Elan South.stm	Number of lines: 17	Date: 5/4/2015

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)	
1	1.77	1.77	Sag	0.20	0.50	0.90	41.29	1.10	0.020	0.020	....	0.477	1.10	1.10**	Outfall	0.00	1545212.12	5301.55	5302.55	0.000	
2	1.23	1.23	1	0.20	0.50	0.90	6.98	1.12	....	....	....	89.890	1.25	1.25	1	0.00	1545211.25	5309.49	5311.32	1.830	
3	1.23	1.23	2	0.20	0.50	0.90	7.00	0.99	....	....	....	-0.092	1.25	1.25	2	0.00	1545210.88	5311.11	5311.69	0.574	
4	1.23	1.23	3	0.20	0.50	0.90	7.00	0.97	....	....	....	-87.786	1.25	1.25	3	0.00	1545386.25	5312.04	5313.24	1.207	
5	0.79	0.79	4	0.20	0.50	0.90	3.82	0.93	....	....	....	0.113	1.00	1.00	4	0.00	1545413.75	5313.66	5314.18	0.520	
6	0.79	0.79	5	0.20	0.50	0.90	3.89	0.87	....	....	....	-0.104	1.00	1.00	5	0.00	1545448.13	5314.04	5314.47	0.428	
7	0.79	0.79	6	0.20	0.50	0.90	3.83	0.87	....	....	....	-22.617	1.00	1.00	6	0.00	1545494.88	5314.67	5315.29	0.619	
8	0.79	0.79	7	0.20	0.50	0.90	3.89	0.83	....	....	....	0.195	1.00	1.00	7	0.00	1545523.50	5315.26	5315.56	0.295	
9	0.79	0.79	8	0.20	0.50	0.90	3.82	0.37	....	....	....	-45.139	1.00	1.00	8	0.00	1545535.13	5315.55	5315.56	0.012	
10	0.79	0.79	9	0.20	0.50	0.90	3.88	0.37	....	....	....	0.005	1.00	1.00	9	0.00	1545545.13	5315.56	5315.58	0.010	
11	0.35	0.35	10	0.20	0.50	0.90	1.31	0.33	....	....	....	0.140	0.67	0.67	10	0.00	1545550.63	5315.61	5315.63	0.019	
12	0.35	0.35	11	0.20	0.50	0.90	1.33	0.33	....	....	....	-0.516	0.67	0.67	11	0.00	1545554.63	5315.63	5315.65	0.014	
13	0.35	0.35	12	0.20	0.50	0.90	1.30	0.33	....	....	....	45.466	0.67	0.67	12	0.00	1545590.75	5315.67	5315.73	0.056	
14	0.79	0.79	8	0.20	0.50	0.90	5.72	0.74	....	....	....	67.545	1.00	1.00	8	0.00	1545554.75	5315.76	5316.04	0.280	
15	0.35	0.35	10	0.20	0.50	0.90	1.98	0.25	....	....	....	-89.966	0.67	0.67	10	0.00	1545505.24	5315.59	5315.61	0.023	
16	0.79	0.79	14	0.20	0.50	0.90	5.59	0.52	....	....	....	-90.318	1.00	1.00	14	0.00	1545575.75	5316.10	5316.14	0.043	
17	0.35	0.28	15	0.20	0.50	0.90	1.96	0.14	....	....	....	-0.058	0.67	0.50	15	0.00	1545476.99	5315.60	5315.60	0.002	

Project File: 2047 Elan South.stm | Number of lines: 17 | Date: 5/4/2015

NOTES: ** Critical depth


Elev (ft)
5334.00
5326.00
5318.00
5310.00
5302.00
5294.00
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
Reach (ft)
HGL
EGL
Sta 0+00.00 - Outfall
Grnd. El. 5305.00
Inv. El. 5300.00 In
Sta 0+30.001 - Ln: 1
Rim El. 5311.00
Inv. El. 5301.00 Out
Inv. El. 5307.56 In
Sta 1+66.504 - Ln: 2
Rim El. 5317.00
Inv. El. 5308.92 Out
Inv. El. 5308.92 In
Sta 2+44.505 - Ln: 3
Rim El. 5318.00
Inv. El. 5309.70 Out
Inv. El. 5309.70 In
Sta 4+20.045 - Ln: 4
Rim El. 5319.50
Inv. El. 5311.46 Out
Inv. El. 5311.46 In
Sta 4+47.574 - Ln: 5
Rim El. 5317.80
Inv. El. 5311.73 Out
Inv. El. 5311.73 In
Sta 4+81.982 - Ln: 6
Rim El. 5319.20
Inv. El. 5312.08 Out
Inv. El. 5312.08 In
Sta 5+31.769 - Ln: 7
Rim El. 5319.30
Inv. El. 5312.57 Out
Inv. El. 5312.57 In
Sta 5+62.217 - Ln: 8
Rim El. 5318.80
Inv. El. 5312.88 Out
Inv. El. 5312.88 In
Sta 5+89.787 - Ln: 9
Rim El. 5319.30
Inv. El. 5313.15 Out
Inv. El. 5313.15 In
Sta 6+13.499 - Ln: 10
Rim El. 5319.10
Inv. El. 5313.39 Out
Inv. El. 5313.39 In
Sta 6+26.473 - Ln: 11
Rim El. 5318.00
Inv. El. 5313.52 Out
Inv. El. 5313.52 In
Sta 6+36.094 - Ln: 12
Rim El. 5317.00
Inv. El. 5313.62 Out
Inv. El. 5313.62 In
Sta 6+74.529 - Ln: 13
Rim El. 5318.00
Inv. El. 5314.00 Out
30.001Lf - 24" @ 3.33%
136.503Lf - 15" @ 1.00%
78.001Lf - 15" @ 1.00%
175.541Lf - 15" @ 1.00%
27.528Lf - 12" @ 0.98%
34.408Lf - 12" @ 1.02%
49.788Lf - 12" @ 0.98%
30.447Lf - 12" @ 1.02%
27.571Lf - 12" @ 0.98%
23.712Lf - 12" @ 1.01%
12.974Lf - 8" @ 1.00%
9.621Lf - 8" @ 1.04%
38.435Lf - 8" @ 0.99%

APPENDIX:

- **Excerpts from the Master Drainage Report dated October 9, 2014**
  - **Cover**
  - **Proposed Conditions with comparison inset**
  - **Tract 3-B and 4-B Construction**
  - **Summary**

OCTOBER 9, 2014

MASTER DRAINAGE REPORT

Update to Master Drainage Report for Santa Monica Place, dated 02/21/12

FOR

TRACTS 3-A, 3-B, 4-A, & 4-B
SANTA MONICA PLACE
(Replat of Tracts 3 & 4, Santa Monica Place)

Louisiana Blvd. and Derickson Ave. NE

Åsa Nilsson-Weber, P.E. Date

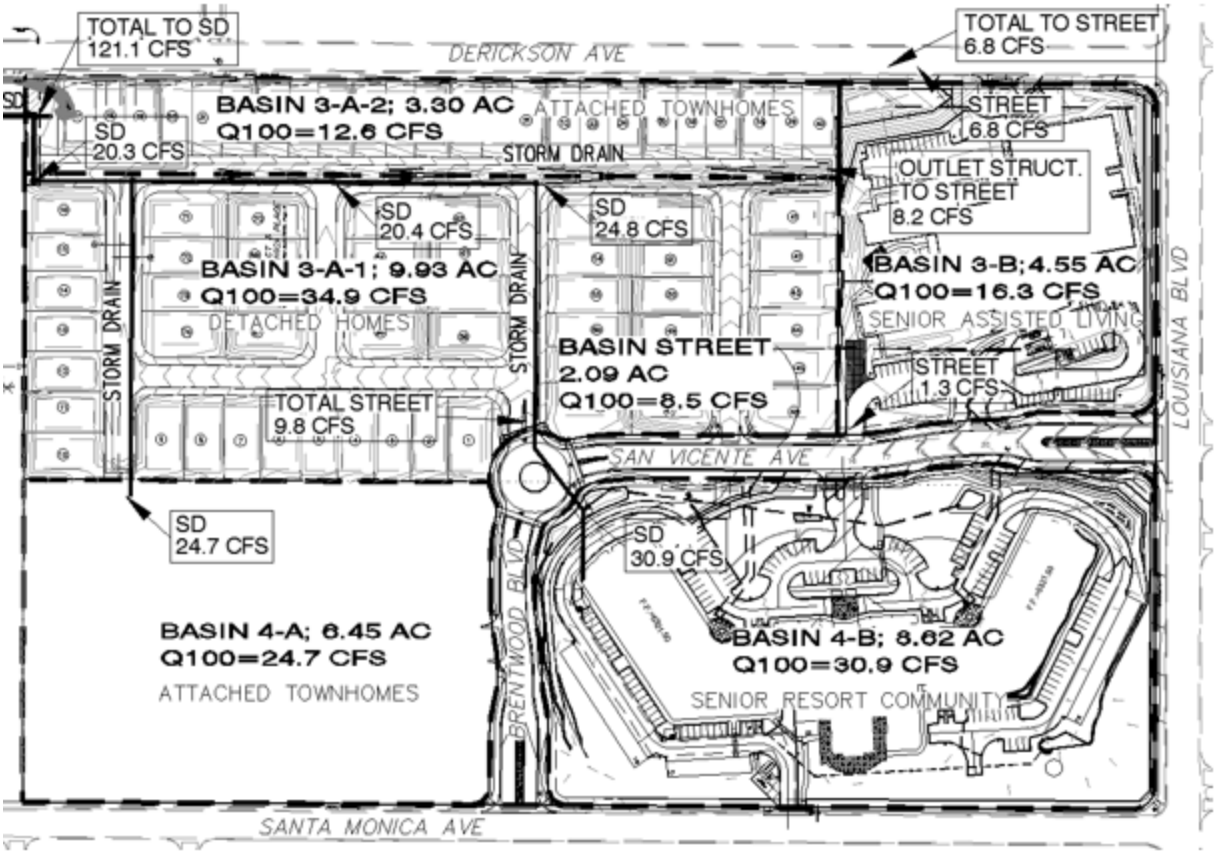
ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
Thomas O. Isaacson, PE & LS [Ret.]
Fred C. Arfman, PE
Åsa Nilsson-Weber, PE

IV. PROPOSED CONDITIONS

Tract 3-B will be developed as an assisted living facility and Tract 4-B as a senior resort. Site plans and preliminary grading plans have been developed for both tracts. Tract 4-A will be developed with attached townhomes—there is currently no site plan for this tract. Tract 3-A will be developed with a mixture of attached townhomes and detached single-family homes—a preliminary layout has been developed.

San Vicente Ave. / Brentwood Blvd. will be constructed, including any required storm drain, rundowns and utilities. Work order plans are in the process of being prepared.

The 100-yr, 6-hr flow rates for each tract were calculated using AHYMO based on NOAA Atlas 14 rainfall data and assigned land treatments—see Appendix A. Tract 3-A was split into two basins—3-A-1 (single detached homes) and 3-A-2 (attached townhomes). The land treatments were based on the site plans for Tracts 3-B and 4-B, and per Table 5 from DPM Section 22.2 for the remaining tracts—see Appendix A.



Proposed Basin Exhibit

Per the AHYMO calculations for the developed property:
Q100 to Derickson (Basins 3 and 5) = 6.63 cfs (allowable = 6.8 cfs)
Q100 west (Basins 1 and 4) = 8.27 cfs (allowable = 8.2 cfs)
Q100 south to San Vicente Ave. (Basin 2) = 1.57 cfs (allowable = 1.3 cfs).

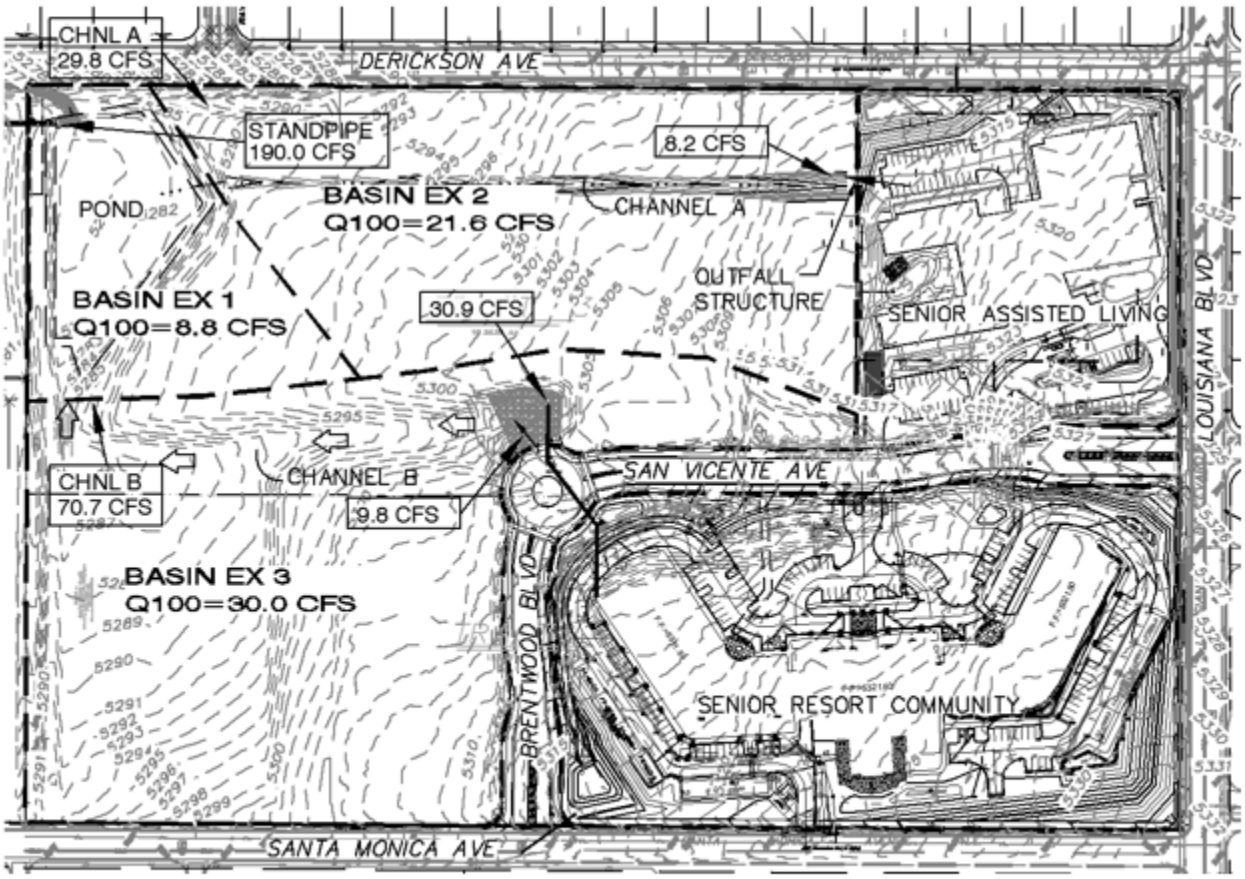
The minor difference in discharge to San Vicente Ave. and to the west storm drain will be factored into the final design for the future storm system (same owner).

TRACTS 3-B AND TRACT 4-B CONSTRUCTION

When Tract 3-B develops, an outfall structure shall be constructed to convey flows to the west at the future roadway alignment in Tract 3-A. An interim channel (Channel A) shall be graded to convey flows to the pond. See Appendix B for channel capacity calculations.

Upon development of Tract 4-B, the temporary standpipe shall be removed and the onsite storm drain system shall be connected to the 18" storm drain installed with the San Vicente Ave. and Brentwood Blvd. construction. The storm drain will continue to discharge into the existing channel and be directed to the pond via the existing channel (Channel B). The channel calculations were based on the narrowest section of the channel. See Appendix B for channel capacity calculations. Velocities in both channels are approximately 4.5 fps, which is non-erosive.

The earthen channels shall be maintained by the Owner of Tract 3-A until the subdivision storm drain system is constructed.



Interim Drainage Exhibit—Tracts 3-B and 4-B Construction

VI. SUMMARY

The following items shall be required for construction of each tract / street. Improvements are listed in the anticipated order of development of each tract.

SAN VICENTE AVE. / BRENTWOOD BLVD.

- *Submit an interim grading & drainage plan to support the Public Work Order.*

- Install a manhole and 24" storm drain (public) under roundabout.
- Install an 18" storm drain and a temporary standpipe (private) on Tract 4-B.
- Outlet erosion control north of the roundabout at Channel B.

TRACT 3-B

- *Submit a grading & drainage plan including interim offsite channel grades to support the Building Permit.*

- Construct outfall structure to convey flows west.
- Construct Channel A from Tract 3-B to the existing pond.

TRACT 4-B

- *Submit a grading & drainage plan to support the Building Permit.*

- Remove temporary standpipe on Tract 4-B and connect the new onsite storm drain to the 18" storm drain installed with San Vicente Ave. and Brentwood Blvd. improvements.

TRACT 4-A

- *Submit a grading & drainage plan to support the Public Work Order and Building Permit.*
- *Submit a drainage report with hydrology/hydraulic calculations including storm drain calculations.*

- Install a storm drain stub to Tract 3-A for interim discharge to pond.
- Construct the infrastructure required for the development.

TRACT 3-A

- *Submit a grading & drainage plan to support the Public Work Order and Building Permit Plans.*
- *Submit a drainage report with hydrology/hydraulic calculations, including storm drain calculations.*

- Remove the rock in Channel B, existing pond and temporary standpipe.
- Construct the infrastructure required for the development, including the ultimate storm drain system.