DRAINAGE REPORT FOR MESA DEL SOL RESIDENTIAL MONTAGE UNIT 3 AND 4

AMENDMENT (REVISED FOR UNIT 4)

MAY 2020

Prepared for:

Corazon del Mesa 3B, LLC

9600 Tennyson St. NE

Bohannan Huston

Engineering

Spatial Data

Advanced Technologies

UNIT 4 AMENDMENT TO:

DRAINAGE REPORT

FOR

MESA DEL SOL

RESIDENTIAL

MONTAGE UNIT 3 AND 4

(ORIGINAL: JANUARY 2019)
AMENDED MAY 2020

Prepared for:

MESA DEL SOL, LLC
5700 UNIVERSITY BLVD WEST SE - SUITE 310
ALBUQUERQUE, NM 87106

Prepared by:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

Prepared By:

Kelly M. K 05/22/2020

Kelly Klein, P.E — Date
Design Engineer

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APPENDICES

EXHIBITS

I. PURPOSE

This purpose of this drainage amendment is to amend the approved drainage report, Drainage *Report for Mesa Del Sol Residential Montage Unit 3 and 4*, *January 2019,* due to the revised layout for Unit 4 from the previous drainage report. Unit 4 consists of 189 single family detached and attached residential lots on approximately 37 acres which will be developed as one unit. The new layout introduces new basin configurations and revises the storm drain network from the previous approved report within the Unit 4 boundary. Unit 3 is currently constructed in accordance with the above approved drainage report and will not be altered by Unit 4. This amendment is submitted in support of grading approval and preliminary plat approval for Montage Unit 4 by the DRB.

II. CONCEPTS AND METHODOLOGIES

The same concepts and methodologies are implemented for this amendment as in the original Drainage Report and are listed in summary below.

1. Drainage conditions were analyzed utilizing the 100-year, 6-hour storm event in accordance with the COA *DPM*. The results are included in Appendices A through C. Street capacity and storm drain inlet calculations supporting this new layout for Unit 4 are located in Appendix A.
2. Onsite runoff will be captured by retention ponds, which are designed to retain and infiltrate approximately the 2-year storm volume, as well as the 100-year 10-day storm volume. Pond 2A will be upsized to accommodate the flows from Unit 4.
3. This amendment conforms to the Level B Master Plan for Mesa del Sol.
4. This amendment conforms to the prior approved drainage reports.
    - *Drainage Report for Mesa del Sol Residential Montage Unit 1 and 2*, prepared by Bohannan Huston, Inc., dated January 2011. COA Record # R16D0034
    - *Drainage Report for Mesa del Sol Residential Montage Unit 3 and 3*, prepared by Bohannan Huston, Inc., dated January 2019. COA Record # R16D006.

III. SITE LOCATION AND CHARACTERISTICS

As mentioned in the previous report, Mesa del Sol Residential Montage Unit 3 and 4 will be developed in two units, Unit 3 and 4. Unit 3 has been constructed. Unit 4 is the subject of this amendment.

The site has been previously graded with relatively flat slopes and generally slopes from west to east at an average grade of about 0.5%.

IV. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

The land comprising Mesa del Sol Residential Montage Unit 4 is currently undeveloped, but was graded several years ago. Ponds 2A, 2B, 3 and 4 are currently graded and accept developed runoff from existing Units 1 and 2, as well as undeveloped runoff to the west of these ponds. Pond 3 and 4 have been graded and certified as part of the Financial Guaranty Release for COA Record # R16D006. Ponds 2A and 2B have also been graded to contain approximately 11.5 ac-ft at a MWSEL of 5300'. Runoff generated by Unit 4 in its present state drains toward the existing ponding areas 2A and 2B.

V. DEVELOPED HYDRAULIC AND HYDROLOGIC CONDITIONS

A. PERMANENT STORM WATER DETENTION PONDS

Ponds 1, 2A, 2B, 3, and 4 function as retention ponds for this project and in the future, which is consistent with the drainage concept throughout the Mesa del Sol area, both commercial and residential. Per the Master Plans and the approved Drainage Reports, Ponds 1, 2A, 2B, and 3 will act in series as a single "linear pond" with flows capable of moving from one pond into another thus equalizing the volume in each pond to a maximum surface elevation of 5300'. The capacities of the ponds required for the development of Unit 4 are presented Pond Summary Table below.

Pond 4 was designed and built to accept developed flows from a developed Unit 4 as laid out in the original drainage report. Since the new Unit 4 layout does not change the runoff volume going to Pond 4, Pond 4 will not require any additional volume and will remain in its current configuration

Existing ponds 2B and 3 were designed and built per the original drainage report to accept developed flows from developed Units 1, 3 and 4. These ponds will remain in their current configuration. The new Unit 4 will divert some of the intended flow from Pond 3 into Pond 2A. Pond 3 will therefore continue to have adequate capacity for the developed flows discharging directly into it and will have additional available volume for equalizing overflow from the other ponds in series with it.

Pond 2A was originally designed to assist in accommodating flows from Montage Units 1 and 2 as well as the offsite flows from the west - with the intent to upgrade and increase the capacity of the ponds, as needed, when further development of the Mesa Del Sol area is completed. With the build-out of Unit 4, Pond 2A will be increased to accommodate the flows from Unit 4. The offsite flows from the west are directed towards Pond 2A. Since Ponds 2A, 2B and 3 act as a single pond, the additional volume of runoff generated from the offsite flows will be captured in the additional cumulative capacity of the linear ponds without requiring the construction of Future Pond 1 at this time.

In addition, in conformance with the previous drainage reports. Pond 2A will also be designed to infiltrate the more frequent 2-yr (90^{th} percentile) storms within 96 hours, but construction at this time will exclude the forebay design and installation. This improvement will be provided at a later date with a separate grading submittal. Infiltration calculations follow the same methodology as the previous reports and are found in Appendix B.

POND SUMMARY - REQUIRED VOLUMES FOR CURRENT BUILDOUT OF UNITS 1,2, 3 AND 4					
POND	**MAX WSEL**	**REQ'D STORAGE VOLUME (AC-FT)**	**MAX DEPTH (FT)**	**Existing AVAILABLE VOLUME (AC-FT)**	**Proposed AVAILABLE VOLUME (AC-FT)**
1 (Future)	N/A	0.0	N/A	N/A	N/A
2A	5300.0	9.2	7.0	4.5	7.7
2B	5300.0	7.6	11.0	7.0	7.0
3	5300.0	8.5	11.0	11.2	11.2
TOTAL*		***25.4***		***22.7***	***25.9***
4	5291.0	8.62	8.0	10.2	10.2

NOTES:
*** PONDS 1, 2A, 2B AND 3 ARE INTENDED TO ACT AS ONE POND PER APPROVED DRAINAGE PLANS**
1. EXISTING POND 2A IS INTENDED TO CAPTURE OFFSITE FLOWS UNTIL FUTURE POND 1 IS CONSTRUCTED
2. EXISTING POND 4 HAS BEEN CONSTRUCTED
3. POND 2A WILL BE UPSIZED BY THIS PROJECT TO ACCOMMODATE FLOWS FROM UNITS 4, AS WELL AS UNITS 1, 2, 3

B. ONSITE DEVELOPED BASINS

The new layout for Unit 4 differs slightly from the original drainage report, and the basin boundaries for Unit 4 have been modified to accommodate the grading and drainage of the new layout while being in conformance with the previous master plans. One notable basin change is the addition of a portion of the original "Future Basin 1" to "Future Basin 4". These newly defined Basins are identified as Future Basin 1a, and Future Basin 4a and Future Basin 4b on the Amended Developed Conditions Basin Map for Unit 4 found in Exhibit 2-1. Exhibit 2-2 overlays the new basin boundaries over the original basin boundaries and shows the differences in runoff areas.

1. OUTFALL 'A'

Outfall 'A' discharges into Pond 3 and consists of Basins A-1, A-2, A-3, A-4, A-5 and A-6, as well as a portion of Future Basin 1, as shown on the Developed Conditions Basin Map from the original Drainage Report. Unit 4 modifies some of the basin boundaries, but, under the new configuration, flow that was intended to enter this Outfall "A" system was actually directed to the new "Outfall C" system. See Exhibit 2-2. The flow within Outfall "A" system was reduced from 122 cfs to 106 cfs. The new flows are identified on the Amended Inlet and Storm Drain Analysis Map found in Exhibit 3. See Appendix A for the revised street hydraulics and storm drain inlet analysis.

2. OUTFALL 'B'

Outfall 'B' discharges into Pond 4 and consists of Basins B-1, B-2, B-3, B-4, B-5, B-6, B-7, Future Basin 2 and Future Basin 3, as well Future Basin 1a as shown on the Developed Conditions Basin Map from the original Drainage Report. Although Unit 4 makes some changes to the original Basin boundaries and inlet locations due to final grading, these flows remain the same as the original Outfall "B" system. See Exhibit 2. Appendix A shows the street hydraulics and storm drain inlet analysis for the new Unit 4 storm drain extension in Scorsese Avenue that is part of Outfall "B".

3. OUTFALL 'C'.

This outfall consists of Basin C-1, C-2, C-3, C-4, Future Basins 4a and 4b. These flows will enter proposed storm drain inlets within these basins and ultimately discharge into Pond 2A. Flows in this Outfall "C" system are greater than anticipated in the prior approved drainage reports. See Exhibit 2-1 for the Basin Map contributing to Outfall "C". Appendix A

shows the street hydraulics and storm drain inlet analysis for the new Unit 4 storm drain in DeKooning and Sagan Loop that is part of Outfall “B”.

VI. CONCLUSION

Onsite developed runoff generated by the site will be conveyed to retention ponds utilizing surface street flows in conjunction with underground public storm drain pipe networks. The linear ponds 2A, 2B and 3 are connected in series to act as one pond with a maximum surface elevation of 5300. The cumulative volume of these ponds is capable of retaining the 100 yr -10 day storm for the onsite and offsite flows. The drainage concept outlined by this Amendment consists of retention ponding of developed Unit 4 runoff consistent with existing development throughout Mesa del Sol, and in conformance with previously approved Level A and Level B Master Plan drainage concepts and prior approved drainage reports.

APPENDICES

APPENDIX A: STREET HYDRAULICS, STORM DRAIN INLET ANALYSIS AND ALLEY HYDRAULICS

APPENDIX B: INFILTRATION CALCULATIONS

APPENDIX C: POND VOLUME CALCULATIONS

APPENDIX D: BASIN SUMMARY SHEET

APPENDIX A

STREET HYDRAULICS, STORM DRAIN INLET ANALYSIS, AND ALLEY HYDRAULICS

Street Section Capacities

66ft row 0.4%

MANNING'S N = 0.017   SLOPE = 0.004

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	12.0	0.1	7.0	56.0	0.0
2.0	9.4	0.7	5.0	33.0	0.6	8.0	56.6	0.7
3.0	10.0	0.0	6.0	54.0	0.1	9.0	66.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.100	0.100	0.169	0.125	3.481	0.737	3.388	0.108
0.200	0.200	0.866	0.831	11.970	0.960	11.788	0.214
0.300	0.300	2.548	3.334	22.129	1.308	21.858	0.327
0.400	0.400	5.237	8.611	32.288	1.644	31.929	0.442
0.500	0.500	8.934	17.475	42.447	1.956	41.999	0.560
0.600	0.600	13.514	32.242	47.664	2.386	47.128	0.689
0.700	0.700	18.279	51.113	50.815	2.796	50.219	0.822
0.800	0.800	23.794	70.473	60.680	2.962	60.082	0.936

52ft row 0.4%

MANNING'S N = 0.017   SLOPE = 0.004

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	40.0	0.0
2.0	11.4	0.7	5.0	26.0	0.4	8.0	40.6	0.7
3.0	12.0	0.0	6.0	38.0	0.1	9.0	52.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.100	0.100	0.169	0.125	3.481	0.737	3.388	0.108
0.200	0.200	0.863	0.830	11.905	0.961	11.723	0.214
0.300	0.300	2.535	3.320	21.978	1.310	21.707	0.327
0.400	0.400	5.160	9.003	29.111	1.745	28.752	0.447
0.500	0.500	8.045	18.753	29.385	2.331	28.940	0.585
0.600	0.600	10.949	31.147	29.660	2.845	29.128	0.726
0.700	0.700	13.914	43.413	32.819	3.120	32.226	0.851
0.800	0.800	17.631	54.043	42.708	3.065	42.113	0.946
0.900	0.900	22.337	69.770	52.597	3.124	52.000	1.052

Stryker_half section-slope-0.51%

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	3.0	10.0	0.0	5.0	33.0	0.6
2.0	9.4	0.7	4.0	12.0	0.1			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.003	0.001	0.348	0.285	0.339	0.021
0.040	0.040	0.014	0.006	0.696	0.452	0.678	0.043
0.060	0.060	0.030	0.018	1.044	0.592	1.016	0.065
0.080	0.080	0.054	0.039	1.392	0.717	1.355	0.088
0.100	0.100	0.085	0.070	1.740	0.832	1.694	0.111
0.120	0.120	0.122	0.115	2.088	0.940	2.033	0.134
0.140	0.140	0.170	0.158	2.937	0.933	2.873	0.154
0.160	0.160	0.237	0.227	3.953	0.957	3.880	0.174
0.180	0.180	0.325	0.329	4.969	1.013	4.887	0.196
0.200	0.200	0.433	0.469	5.985	1.083	5.894	0.218
0.220	0.220	0.561	0.650	7.001	1.160	6.901	0.241
0.240	0.240	0.709	0.878	8.017	1.239	7.908	0.264
0.260	0.260	0.877	1.157	9.033	1.319	8.915	0.287
0.280	0.280	1.065	1.490	10.049	1.398	9.922	0.310
0.300	0.300	1.274	1.882	11.065	1.477	10.929	0.334
0.320	0.320	1.503	2.337	12.080	1.555	11.936	0.358
0.340	0.340	1.751	2.859	13.096	1.632	12.943	0.381
0.360	0.360	2.020	3.451	14.112	1.708	13.950	0.405
0.380	0.380	2.309	4.118	15.128	1.783	14.957	0.429
0.400	0.400	2.619	4.862	16.144	1.857	15.964	0.454
0.420	0.420	2.948	5.687	17.160	1.929	16.971	0.478
0.440	0.440	3.297	6.597	18.176	2.001	17.978	0.502
0.460	0.460	3.667	7.594	19.192	2.071	18.985	0.527
0.480	0.480	4.057	8.683	20.208	2.140	19.993	0.551
0.500	0.500	4.467	9.866	21.223	2.209	21.000	0.576
0.520	0.520	4.897	11.146	22.239	2.276	22.007	0.601
0.540	0.540	5.347	12.528	23.255	2.343	23.014	0.625

36ft row_one way (per X section) 0.4%

MANNING'S N = 0.017 SLOPE = 0.004

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.7	4.0	6.0	0.0	7.0	24.0	-0.3
2.0	4.3	0.5	5.0	14.5	-0.2	8.0	24.7	0.3
3.0	5.0	0.0	6.0	23.0	-0.3	9.0	36.0	0.6

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
-0.240	0.100	0.355	0.293	6.142	0.826	7.100	0.111
-0.140	0.200	1.220	1.531	11.285	1.255	12.200	0.224
-0.040	0.300	2.595	4.192	16.427	1.616	17.300	0.341
0.060	0.400	4.452	9.142	19.669	2.053	19.480	0.466
0.160	0.500	6.412	16.618	19.978	2.592	19.714	0.604
0.260	0.600	8.395	25.774	20.287	3.070	19.948	0.747
0.360	0.700	10.424	34.989	22.031	3.357	21.630	0.875
0.460	0.800	12.840	43.112	27.125	3.358	26.690	0.975
0.560	0.900	15.793	53.151	33.250	3.365	32.800	1.076

20ft row (alley) 0.4%

MANNING'S N = 0.017 SLOPE = 0.004

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.4	4.0	5.5	0.1	7.0	16.0	0.0
2.0	3.4	0.3	5.0	10.0	0.2	8.0	16.6	0.3
3.0	4.0	0.0	6.0	14.5	0.1	9.0	20.0	0.4

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.100	0.100	0.205	0.141	4.638	0.690	4.584	0.107
0.200	0.200	1.036	1.110	12.156	1.071	12.049	0.218
0.300	0.300	2.327	4.027	13.293	1.730	13.136	0.347
0.400	0.400	3.887	7.169	20.173	1.844	20.000	0.453

ROTHKO INLETS

Rothko-era 1+00.txt

MANNING'S N = 0.017 SLOPE = 0.006

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	14.0	0.1	9.0	40.2	0.7
2.0	11.4	0.7	6.0	26.0	0.4	10.0	40.6	0.7
3.0	11.8	0.7	7.0	38.0	0.1	11.0	52.0	0.9
4.0	12.0	0.9	8.0	40.0	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID FLDS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.039	0.022	1.645	0.560	2.484	0.055
0.100	0.100	0.156	0.139	3.290	0.889	4.048	0.112
0.150	0.150	0.366	0.371	6.318	1.053	6.996	0.166
0.200	0.200	0.795	0.911	11.423	1.146	12.021	0.220
0.250	0.250	1.476	1.996	16.527	1.353	17.047	0.278
0.300	0.300	2.408	3.773	21.631	1.567	22.072	0.338
0.350	0.350	3.591	6.377	26.735	1.776	27.098	0.399
0.400	0.400	4.981	10.456	28.839	2.100	29.123	0.469
0.450	0.450	6.391	15.811	28.942	2.474	29.148	0.545
0.500	0.500	7.803	21.999	29.045	2.819	29.174	0.624
0.550	0.550	9.217	28.965	29.148	3.143	29.199	0.704
0.600	0.600	10.631	36.660	29.251	3.448	29.224	0.785
0.650	0.650	12.047	45.048	29.354	3.739	29.250	0.867
0.700	0.700	13.536	50.311	33.282	3.717	32.220	0.915
0.750	0.750	15.271	56.085	38.227	3.673	37.170	0.960
0.800	0.800	17.253	63.381	43.171	3.674	42.113	1.010
0.850	0.850	19.482	72.298	48.116	3.709	47.057	1.064

INLETS #1 & #2

LOCATED @ INTERSECTION OF ROTHKO & NAUMAN

BASIN A-1 - 23.2 CFS

2/3 FUTURE BASIN 1 - 22.2 CFS

45.4 CFS

REVISED NEXT PAGE

STREET CAPACITY

$Y = 0.87' < 0.90'$ ✓ OK

INLET CAPACITY

$d = 0.65'$

@ S: 0.2% - 8.2 CFS

S = 2% - 14 CFS

$$\frac{2-0.2}{14-8.2} = \frac{2-0.6}{14-x} \Rightarrow \frac{1.8}{5.8} = \frac{1.4}{14-x} \Rightarrow 8.12 = 25.2 - 1.8x$$

$x = 9.5$ CFS (PER DOUBLE 'A')

RESIDUAL

45.4 CFS - 2(9.5 CFS) = 26.4 CFS

B-1

Rothko - Slope 0.52%

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	40.0	0.0
2.0	11.4	0.7	5.0	26.0	0.4	8.0	40.6	0.7
3.0	12.0	0.0	6.0	38.0	0.1	9.0	52.0	0.9

INLETS 1 & 2

Located @ intersection of ROTHKO & NAUMAN

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.007	0.002	0.696	0.282	0.678	0.021
0.040	0.040	0.027	0.012	1.392	0.447	1.355	0.043
0.060	0.060	0.061	0.036	2.088	0.586	2.033	0.065
0.080	0.080	0.108	0.077	2.785	0.710	2.710	0.088
0.100	0.100	0.169	0.140	3.481	0.824	3.388	0.111
0.120	0.120	0.244	0.227	4.177	0.930	4.066	0.133
0.140	0.140	0.339	0.314	5.862	0.925	5.733	0.153
0.160	0.160	0.474	0.450	7.876	0.949	7.729	0.174
0.180	0.180	0.649	0.652	9.891	1.005	9.726	0.196
0.200	0.200	0.863	0.928	11.905	1.075	11.723	0.218
0.220	0.220	1.118	1.286	13.920	1.150	13.720	0.241
0.240	0.240	1.412	1.735	15.934	1.228	15.717	0.263
0.260	0.260	1.746	2.283	17.949	1.307	17.713	0.287
0.280	0.280	2.120	2.940	19.963	1.386	19.710	0.310
0.300	0.300	2.535	3.712	21.978	1.464	21.707	0.333
0.320	0.320	2.989	4.608	23.992	1.542	23.704	0.357
0.340	0.340	3.483	5.635	26.007	1.618	25.701	0.381
0.360	0.360	4.017	6.800	28.021	1.693	27.697	0.405
0.380	0.380	4.586	8.278	29.056	1.805	28.715	0.431
0.400	0.400	5.160	10.065	29.111	1.950	28.752	0.459
0.420	0.420	5.736	11.990	29.166	2.090	28.790	0.488
0.440	0.440	6.312	14.046	29.221	2.225	28.827	0.517
0.460	0.460	6.889	16.230	29.276	2.356	28.865	0.546
0.480	0.480	7.467	18.537	29.331	2.483	28.903	0.576
0.500	0.500	8.045	20.966	29.385	2.606	28.940	0.606
0.520	0.520	8.624	23.512	29.440	2.726	28.978	0.636
0.540	0.540	9.204	26.174	29.495	2.844	29.016	0.666
0.560	0.560	9.785	28.947	29.550	2.958	29.053	0.696
0.580	0.580	10.366	31.831	29.605	3.071	29.091	0.727
0.600	0.600	10.949	34.823	29.660	3.181	29.128	0.757
0.620	0.620	11.531	37.921	29.715	3.288	29.166	0.788
0.640	0.640	12.115	41.123	29.770	3.394	29.204	0.819
0.660	0.660	12.700	44.428	29.825	3.498	29.241	0.850
0.680	0.680	13.290	46.862	30.841	3.526	30.249	0.873
0.700	0.700	13.914	48.538	32.819	3.488	32.226	0.889
0.720	0.720	14.579	50.454	34.797	3.461	34.203	0.906
0.740	0.740	15.283	52.604	36.774	3.442	36.181	0.924
0.760	0.760	16.026	54.983	38.752	3.431	38.158	0.943
0.780	0.780	16.809	57.589	40.730	3.426	40.136	0.963
0.800	0.800	17.631	60.422	42.708	3.427	42.113	0.983
0.820	0.820	18.493	63.480	44.686	3.433	44.090	1.003
0.840	0.840	19.395	66.766	46.663	3.442	46.068	1.024
0.860	0.860	20.336	70.280	48.641	3.456	48.045	1.046
0.880	0.880	21.317	74.026	50.619	3.473	50.023	1.068

STREET CAPACITY

Q = 22.66 CFS

d = 0.52' < 0.67 ✓

E = 0.63' < 0.90 ✓

- Basin A-1 = 22.66 CFS

INLET CAPACITY (From Nomograph)

@ S = 0.52%

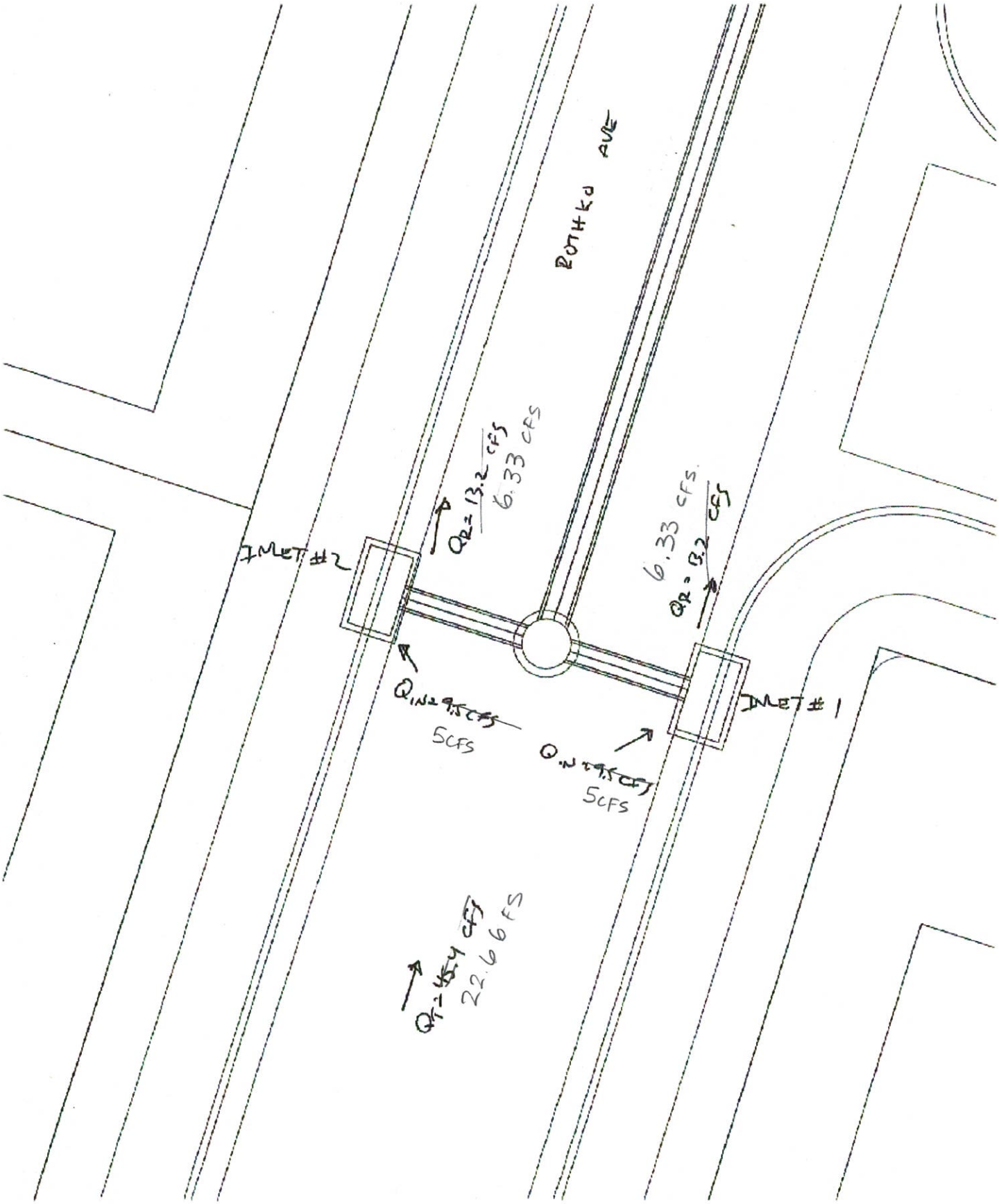
d = 0.51

Q_{inlet} = 5.0 CFS

Per single "A"

RESIDUAL = 22.87 CFS - 2(5.0 CFS) = 12.66 CFS

B-1 Rev


BOTHKU AVE
INLET #2
INLET #1
$Q_{R2} = 13.2$ CFS
6.33 CFS
6.33 CFS
$Q_{R1} = 13.2$ CFS
$Q_{IN2} = 9.5$ CFS
5CFS
$Q_{IN1} = 9.5$ CFS
5CFS
$Q_T = 45.4$ CFS
22.66 FS

B.2

B-2 (Rev)

Rothko-sta 16450.txt

MANNING'S N = 0.017 SLOPE = 0.006

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	14.9	0.1	9.0	40.2	0.7
2.0	11.4	0.7	6.0	26.9	0.4	10.0	40.6	0.7
3.0	11.8	0.7	7.0	38.0	0.1	11.0	52.0	0.9
4.0	12.0	0.0	8.0	40.0	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.039	0.022	1.645	0.560	2.484	0.055
0.100	0.100	0.156	0.139	3.290	0.889	4.048	0.112
0.150	0.150	0.366	0.371	6.318	1.013	6.996	0.166
0.200	0.200	0.795	0.911	12.423	1.146	12.021	0.220
0.250	0.250	1.476	1.996	16.527	1.353	17.047	0.278
0.300	0.300	2.408	3.773	21.631	1.567	22.072	0.338
0.350	0.350	3.591	6.377	26.735	1.776	27.098	0.399
0.400	0.400	4.981	10.458	28.838	2.100	29.123	0.489
0.450	0.450	6.391	15.811	28.942	2.474	29.148	0.545
0.500	0.500	7.803	21.999	29.045	2.819	29.174	0.624
0.550	0.550	9.217	28.965	29.148	3.143	29.199	0.704
0.600	0.600	10.631	36.660	29.251	3.448	29.224	0.785
0.650	0.650	12.047	45.048	29.354	3.739	29.250	0.867
0.700	0.700	13.536	50.311	33.282	3.717	32.226	0.915
0.750	0.750	15.271	56.085	38.222	3.673	37.170	0.960
0.800	0.800	17.253	63.381	43.171	3.674	42.113	1.010
0.850	0.850	19.482	72.198	48.116	3.706	47.057	1.064

INLETS #3 & #4

LOCATED @ INTERSECTION OF ROTHKO & STRAND

BASIN A-2 = 17.0 CFS

RESIDUAL INLETS #1 & #2 = 26.4 CFS

43.4 CFS

REVISED NEXT PAGE

STREET CAPACITY

$$\frac{45.048-36.66}{0.867-0.785} = \frac{45.048-43.4}{0.867-x} \Rightarrow \frac{8.388}{0.082} = \frac{2.348}{0.867-x} \Rightarrow 0.192536 = 7.2724 - 8.388x$$

$x = 0.94' < 0.90'$ ✓ok

INLET CAPACITY

$$\frac{45.048-36.66}{0.65-0.60} = \frac{45.048-43.4}{0.65-x} \Rightarrow \frac{8.388}{0.05} = \frac{2.348}{0.65-x} \Rightarrow 0.1174 = 5.4522 - 8.388x$$

$d = 0.64'$

$Q \leq 0.6\%$, $d = 0.64'$

$0.2\% - 9$ CFS

$2\% - 13.5$ CFS

$$\frac{2-0.2}{13.5-9} = \frac{2-0.6}{13.5-x} \Rightarrow \frac{1.8}{5.5} = \frac{1.4}{13.5-x} \Rightarrow 7.7 = 24.3 - 1.8x$$

$x = 9.2$ CFS (PER DOUBLE 'A')

RESIDUAL

43.4 CFS - 2(9.2 CFS) = 25.0 CFS

Rothko - Slope 0.52%

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	40.0	0.0
2.0	11.4	0.7	5.0	26.0	0.4	8.0	40.6	0.7
3.0	12.0	0.0	6.0	38.0	0.1	9.0	52.0	0.9

INLETS 3 & 4

Located @ Intersection of ROTHKO & STRAND

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.007	0.002	0.696	0.282	0.678	0.021
0.040	0.040	0.027	0.012	1.392	0.447	1.355	0.043
0.060	0.060	0.061	0.036	2.088	0.586	2.033	0.065
0.080	0.080	0.108	0.077	2.785	0.710	2.710	0.088
0.100	0.100	0.169	0.140	3.481	0.824	3.388	0.111
0.120	0.120	0.244	0.227	4.177	0.930	4.066	0.133
0.140	0.140	0.339	0.314	5.862	0.925	5.733	0.153
0.160	0.160	0.474	0.450	7.876	0.949	7.729	0.174
0.180	0.180	0.649	0.652	9.891	1.005	9.726	0.196
0.200	0.200	0.863	0.928	11.905	1.075	11.723	0.218
0.220	0.220	1.118	1.286	13.920	1.150	13.720	0.241
0.240	0.240	1.412	1.735	15.934	1.228	15.717	0.263
0.260	0.260	1.746	2.283	17.949	1.307	17.713	0.287
0.280	0.280	2.120	2.940	19.963	1.386	19.710	0.310
0.300	0.300	2.535	3.712	21.978	1.464	21.707	0.333
0.320	0.320	2.989	4.608	23.992	1.542	23.704	0.357
0.340	0.340	3.483	5.635	26.007	1.618	25.701	0.381
0.360	0.360	4.017	6.800	28.021	1.693	27.697	0.405
0.380	0.380	4.586	8.278	29.056	1.805	28.715	0.431
0.400	0.400	5.160	10.065	29.111	1.950	28.752	0.459
0.420	0.420	5.736	11.990	29.166	2.090	28.790	0.488
0.440	0.440	6.312	14.046	29.221	2.225	28.827	0.517
0.460	0.460	6.889	16.230	29.276	2.356	28.865	0.546
0.480	0.480	7.467	18.537	29.331	2.483	28.903	0.576
0.500	0.500	8.045	20.966	29.385	2.606	28.940	0.606
0.520	0.520	8.624	23.512	29.440	2.726	28.978	0.636
0.540	0.540	9.204	26.174	29.495	2.844	29.016	0.666
0.560	0.560	9.785	28.947	29.550	2.958	29.053	0.696
0.580	0.580	10.366	31.831	29.605	3.071	29.091	0.727
0.600	0.600	10.949	34.823	29.660	3.181	29.128	0.757
0.620	0.620	11.531	37.921	29.715	3.288	29.166	0.788
0.640	0.640	12.115	41.123	29.770	3.394	29.204	0.819
0.660	0.660	12.700	44.428	29.825	3.498	29.241	0.850
0.680	0.680	13.290	46.862	30.841	3.526	30.249	0.873
0.700	0.700	13.914	48.538	32.819	3.488	32.226	0.889
0.720	0.720	14.579	50.454	34.797	3.461	34.203	0.906
0.740	0.740	15.283	52.604	36.774	3.442	36.181	0.924
0.760	0.760	16.026	54.983	38.752	3.431	38.158	0.943
0.780	0.780	16.809	57.589	40.730	3.426	40.136	0.963
0.800	0.800	17.631	60.422	42.708	3.427	42.113	0.983
0.820	0.820	18.493	63.480	44.686	3.433	44.090	1.003
0.840	0.840	19.395	66.766	46.663	3.442	46.068	1.024
0.860	0.860	20.336	70.280	48.641	3.456	48.045	1.046
0.880	0.880	21.317	74.026	50.619	3.473	50.023	1.068

STREET CAPACITY

Q = 31.62 cfs
d = 0.58' < 0.67 ✓
E = 0.725 < 0.9 ✓

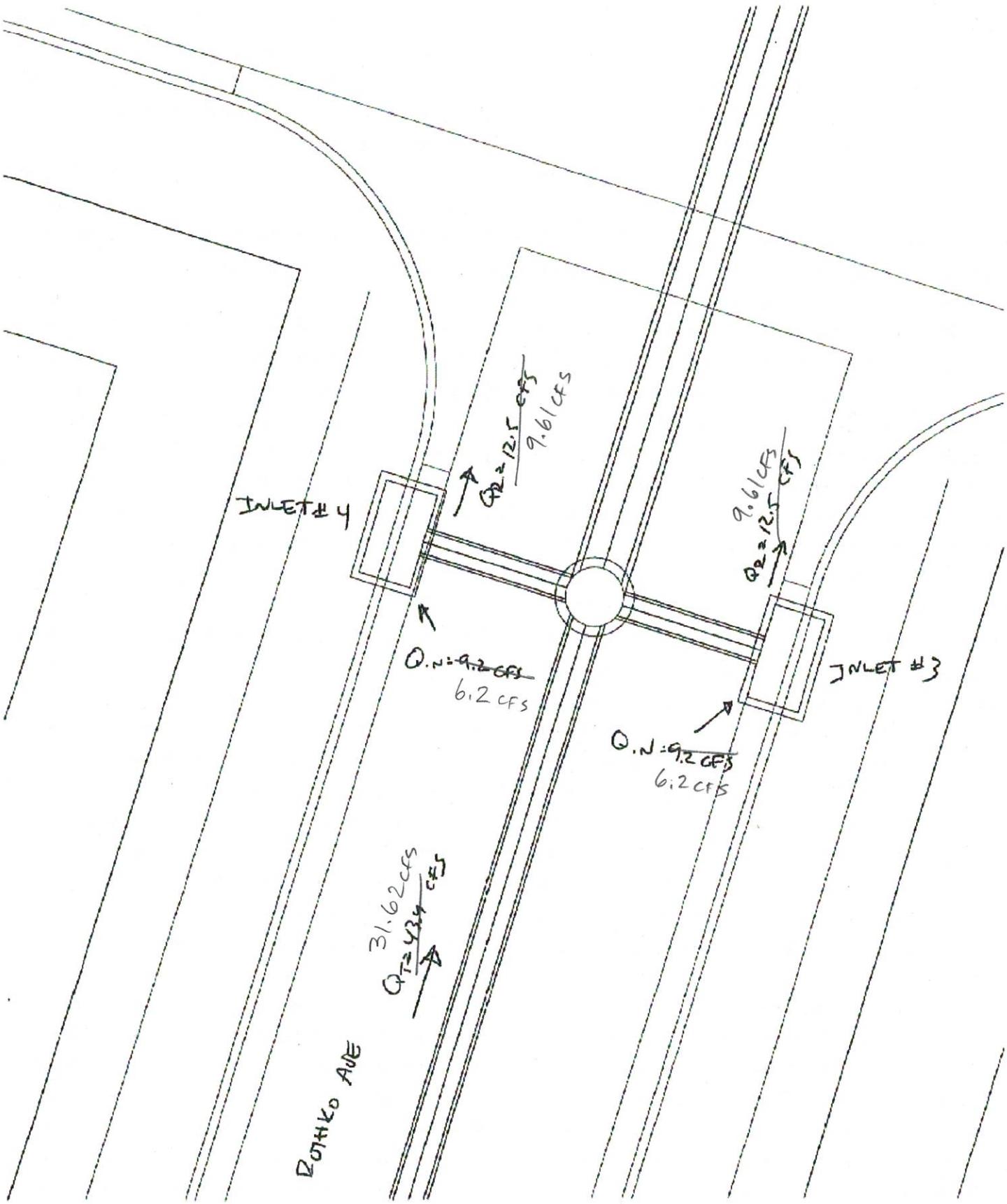
RESIDUAL FLOW = 12.66 cfs
BASIN A-2 = 18.96 cfs
31.62 cfs

INLET CAPACITY (From Nomograph)
@ S = 0.52 %
d = 0.58'
Q_{inlet} = 6.2 cfs
Per single "A"

B-3 (Rev)

RESIDUAL = 31.62 cfs − 2(6.2 cfs) = 19.22 cfs

[This is under the Allowable Residual flow of 25cfs ✓]


INLET #4
Q2 = 12.5 CFS
9.61 CFS
Q2 = 12.5 CFS
9.61 CFS
INLET #3
Q.N = 9.2 CFS
6.2 CFS
Q.N = 9.2 CFS
6.2 CFS
Q100 = 43.4 CFS
31.62 CFS
BONITO AVE

B-4

B-4 (rev)

SCORSESE INLETS

Scorsese-str 13+50.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	14.0	0.1	9.0	40.2	0.7
2.0	11.4	0.7	6.0	26.0	0.4	10.0	40.6	0.7
3.0	11.8	0.7	7.0	38.0	0.1	11.0	52.0	0.9
4.0	12.0	0.0	8.0	40.0	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.039	0.020	1.545	0.511	2.484	0.054
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.150	0.150	0.356	0.338	6.318	0.925	6.996	0.163
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.300	0.300	2.408	3.444	21.632	1.430	22.072	0.332
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.500	0.500	7.803	20.062	29.045	2.574	29.174	0.603
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.700	0.700	13.536	45.927	33.282	3.393	32.226	0.879
0.750	0.750	15.271	51.199	38.227	3.353	37.170	0.925
0.800	0.800	17.253	57.859	43.171	3.354	42.113	0.975
0.850	0.850	19.482	65.907	48.116	3.383	47.057	1.028

INLETS #15 & #16

LOCATED @ INTERSECTION OF SCORSESE & NAUMAN

FUTURE BASIN 2 - 28.6 CFS

BASIN B-2 - 8.0 CFS

19% FUTURE BASIN 3 - 7.6 CFS

44.2 CFS

REVISED SEE NEXT SHEET

STREET CAPACITY

$$\frac{45.93-41.12}{0.879-0.831} = \frac{45.93-44.2}{0.879-x} \Rightarrow \frac{4.81}{0.048} \quad \frac{1.73}{0.879-x} \Rightarrow 0.0834 = 4.22799 - 4.81x$$

$x = 0.86'$ ✓ ok

INLET CAPACITY

$$\frac{45.93-41.12}{0.70-0.65} = \frac{45.93-44.2}{0.70-x} \Rightarrow \frac{4.81}{0.05} = \frac{1.73}{0.7-x} \Rightarrow 0.0965 = 3.367 - 4.81x$$

$x = 0.67'$ ✓ ok

@ S = 0.5%, d = 0.67'

0.2% - 9 CFS

2.0% - 15. CFS

$$\frac{15-9}{2-0.2} = \frac{15-x}{2-0.5} \Rightarrow \frac{6}{1.8} = \frac{15-x}{1.5} = 9 = 27 - x(1.8) \Rightarrow x = 10 \text{ cfs}$$

(PER DOUBLE 'A')

RESIDUAL

44.2 CFS - 2(10 CFS) = 24.2 CFS

Scorsese - Slope 0.50%

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	40.0	0.0
2.0	11.4	0.7	5.0	26.0	0.4	8.0	40.6	0.7
3.0	12.0	0.0	6.0	38.0	0.1	9.0	52.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.007	0.002	0.696	0.282	0.678	0.021
0.040	0.040	0.027	0.012	1.392	0.447	1.355	0.043
0.060	0.060	0.061	0.036	2.088	0.586	2.033	0.065
0.080	0.080	0.108	0.077	2.785	0.710	2.710	0.088
0.100	0.100	0.169	0.140	3.481	0.824	3.388	0.111
0.120	0.120	0.244	0.227	4.177	0.930	4.066	0.133
0.140	0.140	0.339	0.314	5.862	0.925	5.733	0.153
0.160	0.160	0.474	0.450	7.876	0.949	7.729	0.174
0.180	0.180	0.649	0.652	9.891	1.005	9.726	0.196
0.200	0.200	0.863	0.928	11.905	1.075	11.723	0.218
0.220	0.220	1.118	1.286	13.920	1.150	13.720	0.241
0.240	0.240	1.412	1.735	15.934	1.228	15.717	0.263
0.260	0.260	1.746	2.283	17.949	1.307	17.713	0.287
0.280	0.280	2.120	2.940	19.963	1.386	19.710	0.310
0.300	0.300	2.535	3.712	21.978	1.464	21.707	0.333
0.320	0.320	2.989	4.608	23.992	1.542	23.704	0.357
0.340	0.340	3.483	5.635	26.007	1.618	25.701	0.381
0.360	0.360	4.017	6.800	28.021	1.693	27.697	0.405
0.380	0.380	4.586	8.278	29.056	1.805	28.715	0.431
0.400	0.400	5.160	10.065	29.111	1.950	28.752	0.459
0.420	0.420	5.736	11.990	29.166	2.090	28.790	0.488
0.440	0.440	6.312	14.046	29.221	2.225	28.827	0.517
0.460	0.460	6.889	16.230	29.276	2.356	28.865	0.546
0.480	0.480	7.467	18.537	29.331	2.483	28.903	0.576
0.500	0.500	8.045	20.966	29.385	2.606	28.940	0.606
0.520	0.520	8.624	23.512	29.440	2.726	28.978	0.636
0.540	0.540	9.204	26.174	29.495	2.844	29.016	0.666
0.560	0.560	9.785	28.947	29.550	2.958	29.053	0.696
0.580	0.580	10.366	31.831	29.605	3.071	29.091	0.727
0.600	0.600	10.949	34.823	29.660	3.181	29.128	0.757
0.620	0.620	11.531	37.921	29.715	3.288	29.166	0.788
0.640	0.640	12.115	41.123	29.770	3.394	29.204	0.819
0.660	0.660	12.700	44.428	29.825	3.498	29.241	0.850
0.680	0.680	13.290	46.862	30.841	3.526	30.249	0.873
0.700	0.700	13.914	48.538	32.819	3.488	32.226	0.889
0.720	0.720	14.579	50.454	34.797	3.461	34.203	0.906
0.740	0.740	15.283	52.604	36.774	3.442	36.181	0.924
0.760	0.760	16.026	54.983	38.752	3.431	38.158	0.943
0.780	0.780	16.809	57.589	40.730	3.426	40.136	0.963
0.800	0.800	17.631	60.422	42.708	3.427	42.113	0.983
0.820	0.820	18.493	63.480	44.686	3.433	44.090	1.003
0.840	0.840	19.395	66.766	46.663	3.442	46.068	1.024
0.860	0.860	20.336	70.280	48.641	3.456	48.045	1.046
0.880	0.880	21.317	74.026	50.619	3.473	50.023	1.068

INLETS 15 & 16

Located @ intersection of Scorsese & Nauman

STREET CAPACITY

Q = 42.09 cfs

d = 0.65' < 0.67' ✓

E = 0.83' < 0.90' ✓

Future Basin 2 = 28.64 cfs (Master Plan Flow)

Basin B-2 = 8.31 cfs

Future Basin 3 (partial) = 5.14 cfs

42.09 cfs

From Nomograph

INLET CAPACITY

@ Q = 42.09 cfs

S = 0.5%

d = 0.65'

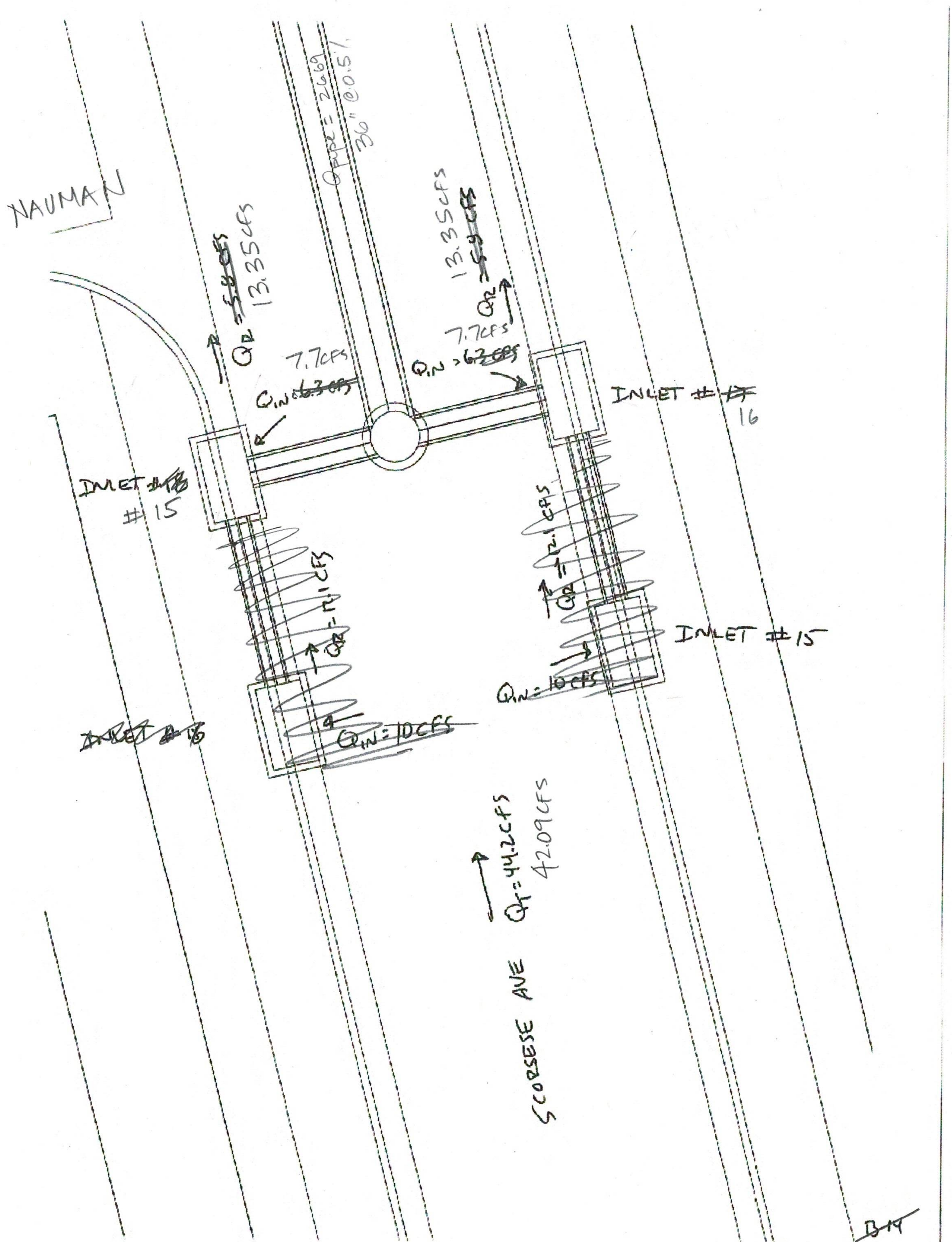
Q_{inlet} = 7.7 cfs

(per single A)

RESIDUAL

42.09 cfs - 2(7.7 cfs) = 26.69 cfs

B-12 (REV)


NAUMAN
INLET #15
INLET #16
INLET #15
7.7CFS
13.35CFS
Q_IN=10CFS
Q_T=44.2CFS
42.09CFS
SCORSESE AVE

B-12A (REV)

Scorsese-sta 13+50.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	14.0	0.1	9.0	40.2	0.7
2.0	11.4	0.7	6.0	26.0	0.4	10.0	40.6	0.7
3.0	11.8	0.7	7.0	38.0	0.1	11.0	52.0	0.9
4.0	12.0	0.0	8.0	40.0	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.150	0.150	0.366	0.338	6.318	0.925	6.996	0.163
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.250	0.250	1.476	1.823	16.527	1.235	17.047	0.274
0.300	0.300	2.408	3.444	21.631	1.430	22.072	0.332
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.400	0.400	4.981	9.547	26.839	1.917	29.123	0.457
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.600	0.600	10.631	33.406	29.251	3.143	29.224	0.754
0.650	0.650	12.047	41.123	29.354	3.413	29.250	0.831
0.700	0.700	13.536	45.927	33.282	3.393	32.226	0.879
0.750	0.750	15.271	51.199	38.227	3.353	37.170	0.925
0.800	0.800	17.253	57.859	43.171	3.354	42.113	0.975
0.850	0.850	19.482	65.907	48.116	3.383	47.057	1.028

INLETS #~~17~~ 16 & #18

LOCATED @ INTERSECT. OF SCORSESE & NAUMAN

RESIDUAL - 24.2 CFS

INLETS #15 & 16

STREET CAPACITY

$$\frac{26.44-20.08}{0.65-0.60} = \frac{26.44-24.2}{0.60-x} \Rightarrow \frac{6.36}{0.05} = \frac{2.24}{0.60-x} \Rightarrow 4.3248 - 6.36x = 0.1792$$

$x = 0.65'$ ✓ ok

INLET CAPACITY

$$\frac{26.44-20.08}{0.55-0.50} = \frac{26.44-24.2}{0.55-x} \Rightarrow \frac{6.36}{0.05} = \frac{2.24}{0.55-x} \Rightarrow 0.112 = 3.498 - 6.36x$$

$x = 0.53'$

@ S = 0.5%, d = 0.53'

@ 2% - 10.5 CFS

@ 0.2% - 5.5 CFS

SEE REVISED NEXT SHEET

$$\frac{10.5-5.5}{2-0.2} = \frac{10.5-x}{2-0.5} \Rightarrow \frac{5}{1.8} = \frac{10.5-x}{1.5} \Rightarrow 7.5 = 18.9 - 1.8x$$

$x = 6.3$ CFS

(PER DUBLE 'A')

RESIDUAL

24.2 CFS - 2(6.3 CFS) = 11.6 CFS

Scorsese - Slope 0.50%

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	40.0	0.0
2.0	11.4	0.7	5.0	26.0	0.4	8.0	40.6	0.7
3.0	12.0	0.0	6.0	38.0	0.1	9.0	52.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.007	0.002	0.696	0.282	0.678	0.021
0.040	0.040	0.027	0.012	1.392	0.447	1.355	0.043
0.060	0.060	0.061	0.036	2.088	0.586	2.033	0.065
0.080	0.080	0.108	0.077	2.785	0.710	2.710	0.088
0.100	0.100	0.169	0.140	3.481	0.824	3.388	0.111
0.120	0.120	0.244	0.227	4.177	0.930	4.066	0.133
0.140	0.140	0.339	0.314	5.862	0.925	5.733	0.153
0.160	0.160	0.474	0.450	7.876	0.949	7.729	0.174
0.180	0.180	0.649	0.652	9.891	1.005	9.726	0.196
0.200	0.200	0.863	0.928	11.905	1.075	11.723	0.218
0.220	0.220	1.118	1.286	13.920	1.150	13.720	0.241
0.240	0.240	1.412	1.735	15.934	1.228	15.717	0.263
0.260	0.260	1.746	2.283	17.949	1.307	17.713	0.287
0.280	0.280	2.120	2.940	19.963	1.386	19.710	0.310
0.300	0.300	2.535	3.712	21.978	1.464	21.707	0.333
0.320	0.320	2.989	4.608	23.992	1.542	23.704	0.357
0.340	0.340	3.483	5.635	26.007	1.618	25.701	0.381
0.360	0.360	4.017	6.800	28.021	1.693	27.697	0.405
0.380	0.380	4.586	8.278	29.056	1.805	28.715	0.431
0.400	0.400	5.160	10.065	29.111	1.950	28.752	0.459
0.420	0.420	5.736	11.990	29.166	2.090	28.790	0.488
0.440	0.440	6.312	14.046	29.221	2.225	28.827	0.517
0.460	0.460	6.889	16.230	29.276	2.356	28.865	0.546
0.480	0.480	7.467	18.537	29.331	2.483	28.903	0.576
0.500	0.500	8.045	20.966	29.385	2.606	28.940	0.606
0.520	0.520	8.624	23.512	29.440	2.726	28.978	0.636
0.540	0.540	9.204	26.174	29.495	2.844	29.016	0.666
0.560	0.560	9.785	28.947	29.550	2.958	29.053	0.696
0.580	0.580	10.366	31.831	29.605	3.071	29.091	0.727
0.600	0.600	10.949	34.823	29.660	3.181	29.128	0.757
0.620	0.620	11.531	37.921	29.715	3.288	29.166	0.788
0.640	0.640	12.115	41.123	29.770	3.394	29.204	0.819
0.660	0.660	12.700	44.428	29.825	3.498	29.241	0.850
0.680	0.680	13.290	46.862	30.841	3.526	30.249	0.873
0.700	0.700	13.914	48.538	32.819	3.488	32.226	0.889
0.720	0.720	14.579	50.454	34.797	3.461	34.203	0.906
0.740	0.740	15.283	52.604	36.774	3.442	36.181	0.924
0.760	0.760	16.026	54.983	38.752	3.431	38.158	0.943
0.780	0.780	16.809	57.589	40.730	3.426	40.136	0.963
0.800	0.800	17.631	60.422	42.708	3.427	42.113	0.983
0.820	0.820	18.493	63.480	44.686	3.433	44.090	1.003
0.840	0.840	19.395	66.766	46.663	3.442	46.068	1.024
0.860	0.860	20.336	70.280	48.641	3.456	48.045	1.046
0.880	0.880	21.317	74.026	50.619	3.473	50.023	1.068

INLETS 17 & 18

LOCATED @ intersection of Scorsese & Strand

STREET CAPACITY

Q = 43.22 cfs
d = 0.65'
E = 0.84' < 0.90' ✓

RESIDUAL FLOW = 26.69 CFS
BASIN 3a = 9.26 CFS
FUTURE BASIN 3 (partial) = 7.27 CFS
43.22 CFS

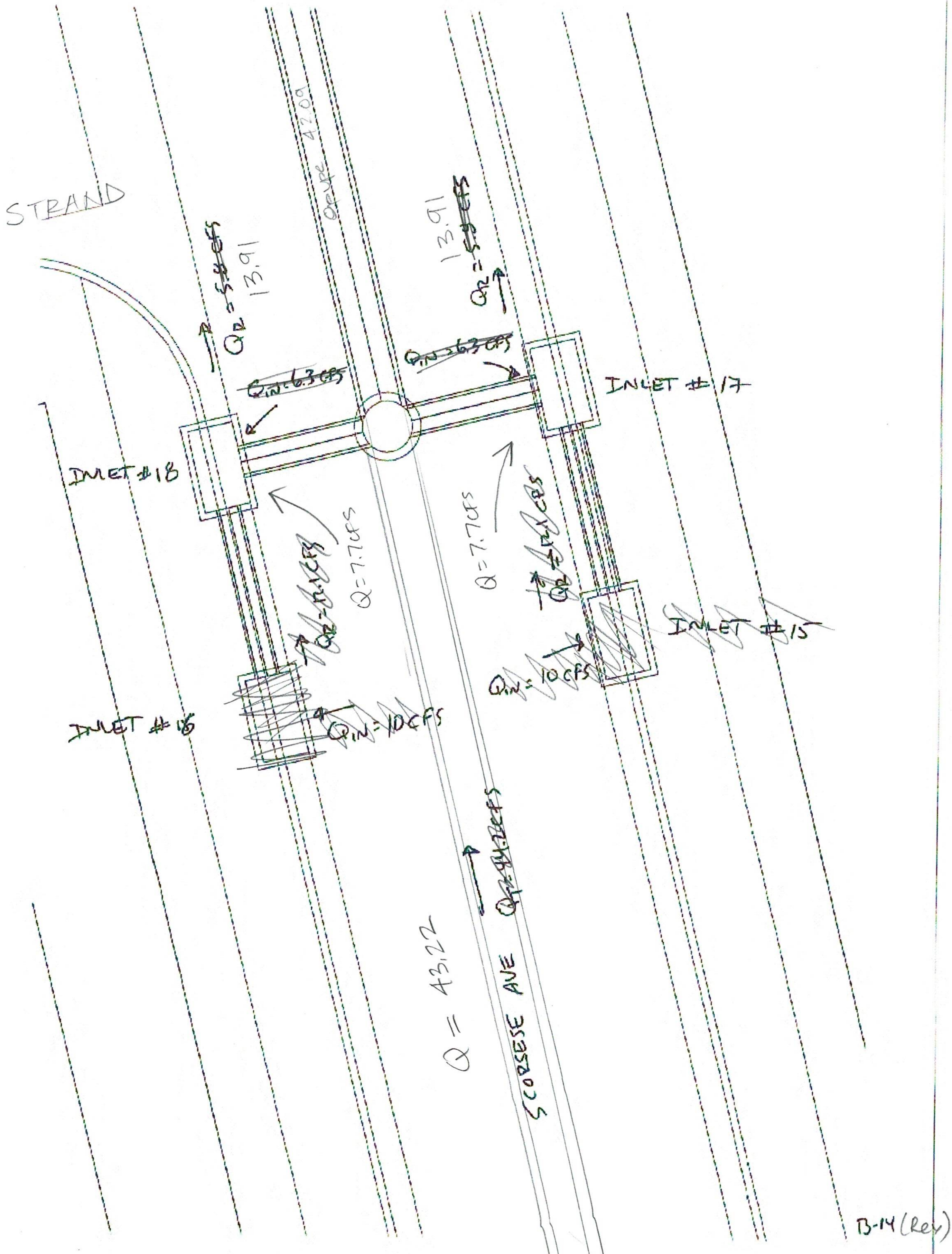
INLET CAPACITY (From Nomograph)

@ S = 0.5%
d = 0.65'
Q_{inlet} = 7.7 CFS

RESIDUAL

43.22 CFS − 2(7.7 CFS) = 27.82 CFS.

B-13 (rev)


STRAND
INLET #18
INLET #17
INLET #16
INLET #15
13.91
13.91
Q = 7.7CFS
Q = 7.7CFS
QIN = 10CFS
QIN = 10CFS
Q = 43.22
SCORSESE AVE

Scorsese slope= 0.48%

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	40.0	0.0
2.0	11.4	0.7	5.0	26.0	0.4	8.0	40.6	0.7
3.0	12.0	0.0	6.0	38.0	0.1	9.0	52.0	0.9

EXISTING INLETS 19 & 20

Located @ intersection of SCORSESE & MOTHER

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.007	0.002	0.696	0.276	0.678	0.021
0.040	0.040	0.027	0.012	1.392	0.438	1.355	0.043
0.060	0.060	0.061	0.035	2.088	0.574	2.033	0.065
0.080	0.080	0.108	0.075	2.785	0.696	2.710	0.088
0.100	0.100	0.169	0.137	3.481	0.807	3.388	0.110
0.120	0.120	0.244	0.222	4.177	0.912	4.066	0.133
0.140	0.140	0.339	0.308	5.862	0.906	5.733	0.153
0.160	0.160	0.474	0.441	7.876	0.930	7.729	0.173
0.180	0.180	0.649	0.639	9.891	0.985	9.726	0.195
0.200	0.200	0.863	0.909	11.905	1.053	11.723	0.217
0.220	0.220	1.118	1.260	13.920	1.127	13.720	0.240
0.240	0.240	1.412	1.699	15.934	1.204	15.717	0.263
0.260	0.260	1.746	2.237	17.949	1.281	17.713	0.286
0.280	0.280	2.120	2.880	19.963	1.358	19.710	0.309
0.300	0.300	2.535	3.637	21.978	1.435	21.707	0.332
0.320	0.320	2.989	4.515	23.992	1.511	23.704	0.355
0.340	0.340	3.483	5.521	26.007	1.585	25.701	0.379
0.360	0.360	4.017	6.663	28.021	1.659	27.697	0.403
0.380	0.380	4.586	8.111	29.056	1.769	28.715	0.429
0.400	0.400	5.160	9.862	29.111	1.911	28.752	0.457
0.420	0.420	5.736	11.747	29.166	2.048	28.790	0.485
0.440	0.440	6.312	13.762	29.221	2.180	28.827	0.514
0.460	0.460	6.889	15.902	29.276	2.308	28.865	0.543
0.480	0.480	7.467	18.163	29.331	2.433	28.903	0.572
0.500	0.500	8.045	20.542	29.385	2.553	28.940	0.601
0.520	0.520	8.624	23.037	29.440	2.671	28.978	0.631
0.540	0.540	9.204	25.645	29.495	2.786	29.016	0.661
0.560	0.560	9.785	28.362	29.550	2.899	29.053	0.691
0.580	0.580	10.366	31.188	29.605	3.009	29.091	0.721
0.600	0.600	10.949	34.119	29.660	3.116	29.128	0.751
0.620	0.620	11.531	37.155	29.715	3.222	29.166	0.781
0.640	0.640	12.115	40.292	29.770	3.326	29.204	0.812
0.660	0.660	12.700	43.530	29.825	3.428	29.241	0.843
0.680	0.680	13.290	45.916	30.841	3.455	30.249	0.866
0.700	0.700	13.914	47.557	32.819	3.418	32.226	0.882
0.720	0.720	14.579	49.434	34.797	3.391	34.203	0.899
0.740	0.740	15.283	51.541	36.774	3.373	36.181	0.917
0.760	0.760	16.026	53.872	38.752	3.362	38.158	0.936
0.780	0.780	16.809	56.426	40.730	3.357	40.136	0.955
0.800	0.800	17.631	59.201	42.708	3.358	42.113	0.975
0.820	0.820	18.493	62.197	44.686	3.363	44.090	0.996
0.840	0.840	19.395	65.417	46.663	3.373	46.068	1.017
0.860	0.860	20.336	68.860	48.641	3.386	48.045	1.038
0.880	0.880	21.317	72.530	50.619	3.402	50.023	1.060

STREET CAPACITY

Q = 33.77 CFS

d = 0.6' < 0.67' ✓

E = 0.75' < 0.9 ✓

RESIDUAL FLOW = 27.82 CFS

Montage 3B Basin 2 (partial) = 5.95 CFS

33.77 CFS < 39.8 CFS ✓

PLANNED FLOW FROM UNIT 3:

SEE NEXT PAGE

Scorsese-sta 19+50.txt

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	14.0	0.1	9.0	40.2	0.7
2.0	11.4	0.7	6.0	26.0	0.4	10.0	40.6	0.7
3.0	11.8	0.7	7.0	38.0	0.1	11.0	52.0	0.9
4.0	12.0	0.0	8.0	40.0	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.039	0.020	1.645	0.511	2.484	0.054
0.100	0.100	0.156	0.127	3.290	0.811	4.048	0.110
0.150	0.150	0.366	0.338	4.318	0.925	6.996	0.163
0.200	0.200	0.795	0.832	11.423	1.046	12.021	0.217
0.250	0.250	1.476	1.823	18.527	1.235	17.047	0.274
0.300	0.300	2.408	3.444	21.691	1.430	22.072	0.332
0.350	0.350	3.591	5.822	26.735	1.621	27.098	0.391
0.400	0.400	4.981	9.547	28.839	1.917	29.123	0.457
0.450	0.450	6.391	14.433	28.942	2.258	29.148	0.529
0.500	0.500	7.803	20.082	29.045	2.574	29.174	0.603
0.550	0.550	9.217	26.441	29.148	2.869	29.199	0.678
0.600	0.600	10.631	33.466	29.251	3.148	29.224	0.754
0.650	0.650	12.047	41.129	29.354	3.413	29.250	0.831
0.700	0.700	13.536	49.927	33.282	3.393	32.220	0.879
0.750	0.750	15.271	61.199	38.227	3.355	37.170	0.925
0.800	0.800	17.253	57.859	43.171	3.354	42.113	0.975
0.850	0.850	19.482	65.907	48.116	3.383	47.057	1.028

INLETS #19 & #20

LOCATED @ INTERSECTION OF SCORSESE & MOTHERWELL

RESIDUAL - 11.6 CFS
INLETS #17 & #18

BASIN B-3 - 17.3 CFS

3490 FUTURE BASIN 3 - 10.9 CFS

39.8 CFS

STREET CAPACITY

$$\frac{41.12-33.47}{0.83-0.75} = \frac{41.12-39.8}{0.83-x} \Rightarrow \frac{7.65}{0.09} = \frac{1.32}{0.82-x} \Rightarrow 0.1056 = 6.3495 - 7.65x$$

$x = 0.82'$ ✓ ok

INLET CAPACITY

$$\frac{41.12-33.47}{0.65-0.60} = \frac{41.12-39.8}{0.65-x} \Rightarrow \frac{7.65}{0.05} = \frac{1.32}{0.65-x} \Rightarrow 4.9725 - 7.65x = 0.066$$

$d = 0.64'$

@ S = 0.5%, d = 0.64'

0.2% - 8 CFS

2% - 13.5 CFS

$$\frac{2-0.2}{17.5-8} = \frac{2-0.5}{17.5-x} \Rightarrow \frac{1.8}{5.5} = \frac{1.5}{13.5-x} \Rightarrow 8.25 = 24.3 - 1.8x$$

$x = 8.9$ CFS (PER DWBLE 'A')

RESIDUAL

39.8 CFS - 2(8.9 CFS) = 22 CFS

DEKOONING INLETS

Inlets 42 & 43

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	12.0	0.1	7.0	56.0	0.0
2.0	9.4	0.7	5.0	33.0	0.6	8.0	56.6	0.7
3.0	10.0	0.0	6.0	54.0	0.1	9.0	66.0	0.9

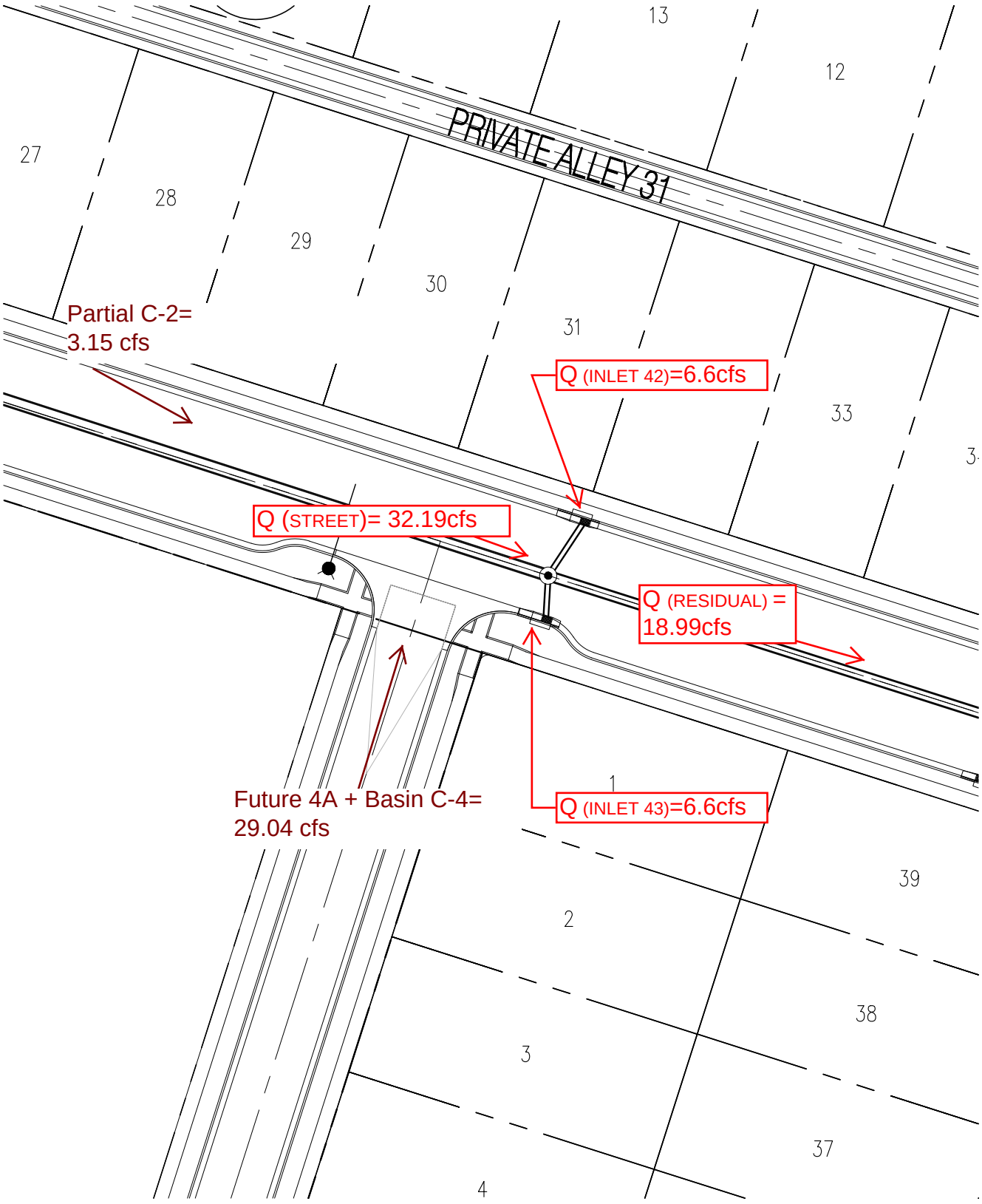
WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOPWID WATER	TOTAL ENERGY (FT)	FROUDE NO.
0.020	0.020	0.007	0.002	0.672	0.267	0.653	0.653	0.021	0.471
0.040	0.040	0.026	0.011	1.343	0.424	1.306	1.306	0.043	0.529
0.060	0.060	0.059	0.033	2.015	0.556	1.959	1.959	0.065	0.566
0.080	0.080	0.104	0.070	2.686	0.673	2.612	2.612	0.087	0.593
0.100	0.100	0.163	0.128	3.358	0.781	3.265	3.265	0.109	0.616
0.120	0.120	0.235	0.207	4.030	0.882	3.918	3.918	0.132	0.635
0.140	0.140	0.323	0.291	5.393	0.898	5.263	5.263	0.153	0.639
0.160	0.160	0.449	0.405	7.448	0.902	7.301	7.301	0.173	0.641
0.180	0.180	0.615	0.582	9.504	0.946	9.339	9.339	0.194	0.649
0.200	0.200	0.823	0.828	11.559	1.007	11.376	11.376	0.216	0.660
0.220	0.220	1.071	1.152	13.614	1.076	13.414	13.414	0.238	0.672
0.240	0.240	1.359	1.562	15.670	1.149	15.451	15.451	0.261	0.683
0.260	0.260	1.689	2.065	17.725	1.223	17.489	17.489	0.283	0.694
0.280	0.280	2.059	2.671	19.780	1.297	19.527	19.527	0.306	0.704
0.300	0.300	2.470	3.387	21.835	1.371	21.564	21.564	0.329	0.714
0.320	0.320	2.921	4.220	23.891	1.445	23.602	23.602	0.352	0.724
0.340	0.340	3.414	5.178	25.946	1.517	25.639	25.639	0.376	0.733
0.360	0.360	3.947	6.268	28.001	1.588	27.677	27.677	0.399	0.741
0.380	0.380	4.521	7.497	30.057	1.658	29.715	29.715	0.423	0.750
0.400	0.400	5.135	8.872	32.112	1.728	31.752	31.752	0.446	0.757
0.420	0.420	5.791	10.399	34.167	1.796	33.790	33.790	0.470	0.765
0.440	0.440	6.487	12.086	36.223	1.863	35.827	35.827	0.494	0.772
0.460	0.460	7.224	13.937	38.278	1.929	37.865	37.865	0.518	0.779
0.480	0.480	8.002	15.960	40.333	1.995	39.903	39.903	0.542	0.785
0.500	0.500	8.820	18.161	42.388	2.059	41.940	41.940	0.566	0.792
0.520	0.520	9.679	20.545	44.444	2.123	43.978	43.978	0.590	0.798
0.540	0.540	10.579	23.119	46.499	2.185	46.016	46.016	0.614	0.804
0.560	0.560	11.515	26.231	47.554	2.278	47.053	47.053	0.641	0.812
0.580	0.580	12.456	29.879	47.609	2.399	47.091	47.091	0.669	0.822
0.600	0.600	13.399	33.714	47.664	2.516	47.128	47.128	0.698	0.832
0.620	0.620	14.341	37.732	47.719	2.631	47.166	47.166	0.728	0.841
0.640	0.640	15.285	41.927	47.774	2.743	47.204	47.204	0.757	0.850
0.660	0.660	16.230	46.298	47.829	2.853	47.241	47.241	0.787	0.858
0.680	0.680	17.180	50.196	48.843	2.922	48.246	48.246	0.813	0.863
0.700	0.700	18.164	53.646	50.816	2.953	50.219	50.219	0.836	0.866
0.720	0.720	19.188	57.308	52.789	2.987	52.192	52.192	0.859	0.868
0.740	0.740	20.252	61.184	54.762	3.021	54.164	54.164	0.882	0.871
0.760	0.760	21.355	65.279	56.735	3.057	56.137	56.137	0.905	0.874
0.780	0.780	22.497	69.598	58.708	3.094	58.109	58.109	0.929	0.877
0.800	0.800	23.679	74.146	60.681	3.131	60.082	60.082	0.953	0.879
0.820	0.820	24.901	78.928	62.654	3.170	62.055	62.055	0.976	0.882
0.840	0.840	26.162	83.947	64.627	3.209	64.027	64.027	1.000	0.885

Basin C4 = 16.49 cfs
Partial Basin C2 = 3.15 cfs
Future Basin 4A = 12.55 cfs
TOTAL = 32.19 cfs

Street Capacity
Q = 32.19 cfs
d = .59 < .67'
E = .69' < .90'

Inlet Capacity
@ S = .45%
d = .59
Q inlet = 6.6 cfs
per SINGLE GRATE

Residual Flow = 32.19 - 2*(6.6) = 18.99cfs


PRIVATE ALLEY 31
13
12
27
28
29
30
31
33
Partial C-2=
3.15 cfs
Q (INLET 42)=6.6cfs
Q (STREET)= 32.19cfs
Q (RESIDUAL) =
18.99cfs
Future 4A + Basin C-4=
29.04 cfs
Q (INLET 43)=6.6cfs
1
2
3
4
38
39
37

Dekooning

Inlets 44&45 and 46&47

MANNING'S N = 0.017 SLOPE = 0.004

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	12.0	0.1	7.0	56.0	0.0
2.0	9.4	0.7	5.0	33.0	0.6	8.0	56.6	0.7
3.0	10.0	0.0	6.0	54.0	0.1	9.0	66.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOPWID WATER	TOTAL ENERGY (FT)	FROUDE NO.
0.020	0.020	0.007	0.002	0.672	0.252	0.653	0.653	0.021	0.444
0.040	0.040	0.026	0.010	1.343	0.400	1.306	1.306	0.042	0.498
0.060	0.060	0.059	0.031	2.015	0.524	1.959	1.959	0.064	0.533
0.080	0.080	0.104	0.066	2.686	0.635	2.612	2.612	0.086	0.559
0.100	0.100	0.163	0.120	3.358	0.736	3.265	3.265	0.108	0.581
0.120	0.120	0.235	0.195	4.030	0.832	3.918	3.918	0.131	0.599
0.140	0.140	0.323	0.274	5.393	0.847	5.263	5.263	0.151	0.602
0.160	0.160	0.449	0.382	7.448	0.850	7.301	7.301	0.171	0.604
0.180	0.180	0.615	0.549	9.504	0.892	9.339	9.339	0.192	0.612
0.200	0.200	0.823	0.781	11.559	0.949	11.376	11.376	0.214	0.622
0.220	0.220	1.071	1.086	13.614	1.015	13.414	13.414	0.236	0.633
0.240	0.240	1.359	1.472	15.670	1.083	15.451	15.451	0.258	0.644
0.260	0.260	1.689	1.947	17.725	1.153	17.489	17.489	0.281	0.654
0.280	0.280	2.059	2.518	19.780	1.223	19.527	19.527	0.303	0.664
0.300	0.300	2.470	3.193	21.835	1.293	21.564	21.564	0.326	0.674
0.320	0.320	2.921	3.979	23.891	1.362	23.602	23.602	0.349	0.682
0.340	0.340	3.414	4.882	25.946	1.430	25.639	25.639	0.372	0.691
0.360	0.360	3.947	5.910	28.001	1.497	27.677	27.677	0.395	0.699
0.380	0.380	4.521	7.069	30.057	1.564	29.715	29.715	0.418	0.707
0.400	0.400	5.135	8.365	32.112	1.629	31.752	31.752	0.441	0.714
0.420	0.420	5.791	9.805	34.167	1.693	33.790	33.790	0.465	0.721
0.440	0.440	6.487	11.394	36.223	1.756	35.827	35.827	0.488	0.728
0.460	0.460	7.224	13.140	38.278	1.819	37.865	37.865	0.511	0.734
0.480	0.480	8.002	15.047	40.333	1.881	39.903	39.903	0.535	0.740
0.500	0.500	8.820	17.122	42.388	1.941	41.940	41.940	0.559	0.746
0.520	0.520	9.679	19.370	44.444	2.001	43.978	43.978	0.582	0.752
0.540	0.540	10.579	21.797	46.499	2.060	46.016	46.016	0.606	0.758
0.560	0.560	11.515	24.731	47.554	2.148	47.053	47.053	0.632	0.765
0.580	0.580	12.456	28.170	47.609	2.262	47.091	47.091	0.660	0.775
0.600	0.600	13.399	31.786	47.664	2.372	47.128	47.128	0.688	0.784
0.620	0.620	14.341	35.574	47.719	2.480	47.166	47.166	0.716	0.793
0.640	0.640	15.285	39.530	47.774	2.586	47.204	47.204	0.744	0.801
0.660	0.660	16.230	43.650	47.829	2.690	47.241	47.241	0.773	0.809
0.680	0.680	17.180	47.325	48.843	2.755	48.246	48.246	0.798	0.814
0.700	0.700	18.164	50.578	50.816	2.784	50.219	50.219	0.821	0.816
0.720	0.720	19.188	54.030	52.789	2.816	52.192	52.192	0.843	0.819
0.740	0.740	20.252	57.685	54.762	2.848	54.164	54.164	0.866	0.821
0.760	0.760	21.355	61.546	56.735	2.882	56.137	56.137	0.889	0.824
0.780	0.780	22.497	65.618	58.708	2.917	58.109	58.109	0.912	0.826
0.800	0.800	23.679	69.906	60.681	2.952	60.082	60.082	0.936	0.829
0.820	0.820	24.901	74.414	62.654	2.988	62.055	62.055	0.959	0.832
0.840	0.840	26.162	79.146	64.627	3.025	64.027	64.027	0.982	0.834

Inlets 44&45 and 46&47

Residual Flow = 18.99 cfs
Partial Basin C2 = 2.96 cfs
Basin C1 = 8.00 cfs
Basin C3 = 6.08 cfs
TOTAL = 36.03 cfs

Inlet Capacity (Sump condition)

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Q(inlet) = 36.03 cfs / 4 inlets

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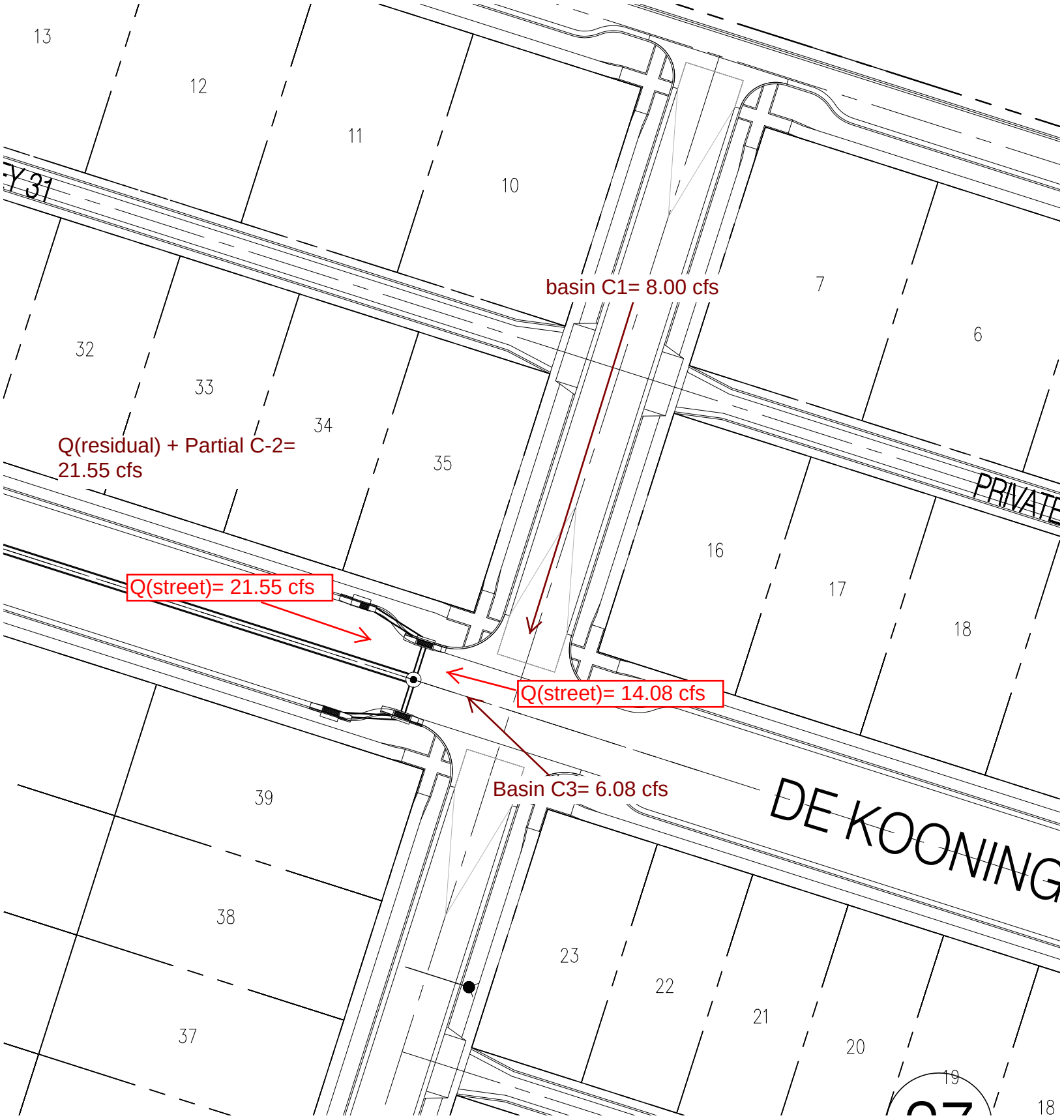
Q inlet= 9.0 cfs (See Sump Calcs)


basin C1= 8.00 cfs
Q(residual) + Partial C-2= 21.55 cfs
Q(street)= 21.55 cfs
Q(street)= 14.08 cfs
Basin C3= 6.08 cfs
DE KOONING
PRIVATE

ANALYSIS OF AN INLET IN A SUMP CONDITION **DeKooning and Dasburg**

INLET TYPE: Single Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5

ORIFICE: Q=C*A*(2*G*H)^0.5

Wing opening	Grate opening	Grate opening	Wing opening*
C= 3.0	C=3.0	C=0.6	C=0.6
L= 4.0 ft	L(single grate)=[(2.67')+2(1.8')]=6.27 ft	A(single grate)=3.72 sf	A=2.0 sf
Q=3.0(4.0')H^1.5= 12.0H**1	Q=3.0(6.27)H^1.5=18.81*H^1.5	Q=0.6*3.72*(64.4*H)^0.5	Q=1.2*(64.4*H)^0.5

*not included in the orifice calcs

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR WING OPENING	Q (CFS) WEIR SINGLE GRATE	Q (CFS) ORIFICE SINGLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at single "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.59	5.66	1.35	Weir controls on grate analysis
	0.20	0.20	1.07	1.68	8.01	3.83	
	0.30	0.30	1.97	3.09	9.81	7.03	Q(100 yr) = 9.0 cfs is provided at this depth
	0.40	0.40	3.04	4.76	11.33	10.83	
	0.50	0.50	4.24	6.65	12.67	15.14	
	0.60	0.60	5.58	8.74	13.87	19.90	Q(2X100 yr) = 18.0 cfs is provided at this depth
TOP OF CURB	0.70	0.70	7.03	11.02	14.99	25.07	
	0.80	0.80	8.59	13.46	16.02	30.63	
ROW LIMIT	0.90	0.90	10.25	16.06	16.99	36.55	
	1.00	1.00	12.00	18.81	17.91	41.91	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Q(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

SAGAN INLETS

Traffic Circle 1/2 Section

MANNING'S N = 0.017 SLOPE = 0.005

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	1.3	4.0	30.0	0.3	7.0	60.7	0.7
2.0	28.5	0.8	5.0	58.0	0.1	8.0	70.0	0.9
3.0	29.1	0.3	6.0	60.0	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.020	0.020	0.003	0.001	0.349	0.282	1.215	0.021
0.040	0.040	0.014	0.006	0.698	0.448	1.555	0.043
0.060	0.060	0.031	0.018	1.047	0.587	1.895	0.065
0.080	0.080	0.054	0.039	1.396	0.711	2.235	0.088
0.100	0.100	0.085	0.070	1.745	0.825	2.575	0.111
0.120	0.120	0.122	0.114	2.093	0.931	2.915	0.133
0.140	0.140	0.187	0.127	5.160	0.677	5.973	0.147
0.160	0.160	0.329	0.221	9.132	0.674	9.936	0.167
0.180	0.180	0.549	0.410	13.104	0.746	13.900	0.189
0.200	0.200	0.850	0.710	17.076	0.836	17.864	0.211
0.220	0.220	1.229	1.143	21.048	0.930	21.827	0.233
0.240	0.240	1.688	1.729	25.020	1.024	25.791	0.256
0.260	0.260	2.226	2.485	28.992	1.116	29.755	0.279
0.280	0.280	2.826	3.583	30.421	1.268	31.171	0.305
0.300	0.300	3.462	4.924	31.356	1.422	31.216	0.331
0.320	0.320	4.086	6.484	31.417	1.587	31.261	0.359
0.340	0.340	4.712	8.211	31.477	1.743	31.306	0.387
0.360	0.360	5.339	10.098	31.537	1.891	31.351	0.416
0.380	0.380	5.966	12.137	31.598	2.034	31.396	0.444
0.400	0.400	6.594	14.323	31.658	2.172	31.441	0.473
0.420	0.420	7.224	16.651	31.718	2.305	31.486	0.503
0.440	0.440	7.854	19.118	31.778	2.434	31.531	0.532
0.460	0.460	8.485	21.719	31.839	2.560	31.576	0.562
0.480	0.480	9.117	24.450	31.899	2.682	31.621	0.592
0.500	0.500	9.750	27.310	31.959	2.801	31.666	0.622
0.520	0.520	10.384	30.294	32.020	2.917	31.711	0.652
0.540	0.540	11.018	33.401	32.080	3.031	31.756	0.683
0.560	0.560	11.654	36.627	32.140	3.143	31.801	0.714
0.580	0.580	12.290	39.972	32.201	3.252	31.846	0.745
0.600	0.600	12.928	43.432	32.261	3.360	31.891	0.776
0.620	0.620	13.566	47.005	32.321	3.465	31.936	0.807
0.640	0.640	14.205	50.691	32.381	3.569	31.981	0.838
0.660	0.660	14.845	54.487	32.442	3.670	32.026	0.870
0.680	0.680	15.489	57.843	32.979	3.735	32.552	0.897
0.700	0.700	16.150	60.776	33.993	3.763	33.559	0.920
0.720	0.720	16.831	63.845	35.008	3.793	34.567	0.944
0.740	0.740	17.532	67.052	36.022	3.824	35.574	0.968
0.760	0.760	18.254	70.398	37.036	3.857	36.581	0.991
0.780	0.780	19.000	73.100	38.688	3.847	38.230	1.010
0.800	0.800	19.784	75.622	40.683	3.822	40.224	1.027
0.820	0.820	20.609	78.404	42.678	3.804	42.219	1.045
0.840	0.840	21.473	81.442	44.673	3.793	44.213	1.064

Future Basin 4b = 32.52 cfs

Basin C6 = 2.78 cfs

TOTAL = 35.3 cfs

Street has capacity

Sagan and Alley 32 Intersection slope .45%

MANNING'S N = 0.017 SLOPE = 0.005

Inlets 40, 41 and 39 @ Sump condition

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	12.0	0.1	7.0	56.0	0.0
2.0	9.4	0.7	5.0	33.0	0.6	8.0	56.6	0.7
3.0	10.0	0.0	6.0	54.0	0.1	9.0	66.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOPWID WATER	TOTAL ENERGY (FT)	FROUDE NO.
0.020	0.020	0.007	0.002	0.672	0.267	0.653	0.653	0.021	0.471
0.040	0.040	0.026	0.011	1.343	0.424	1.306	1.306	0.043	0.529
0.060	0.060	0.059	0.033	2.015	0.556	1.959	1.959	0.065	0.566
0.080	0.080	0.104	0.070	2.686	0.673	2.612	2.612	0.087	0.593
0.100	0.100	0.163	0.128	3.358	0.781	3.265	3.265	0.109	0.616
0.120	0.120	0.235	0.207	4.030	0.882	3.918	3.918	0.132	0.635
0.140	0.140	0.323	0.291	5.393	0.898	5.263	5.263	0.153	0.639
0.160	0.160	0.449	0.405	7.448	0.902	7.301	7.301	0.173	0.641
0.180	0.180	0.615	0.582	9.504	0.946	9.339	9.339	0.194	0.649
0.200	0.200	0.823	0.828	11.559	1.007	11.376	11.376	0.216	0.660
0.220	0.220	1.071	1.152	13.614	1.076	13.414	13.414	0.238	0.672
0.240	0.240	1.359	1.562	15.670	1.149	15.451	15.451	0.261	0.683
0.260	0.260	1.689	2.065	17.725	1.223	17.489	17.489	0.283	0.694
0.280	0.280	2.059	2.671	19.780	1.297	19.527	19.527	0.306	0.704
0.300	0.300	2.470	3.387	21.835	1.371	21.564	21.564	0.329	0.714
0.320	0.320	2.921	4.220	23.891	1.445	23.602	23.602	0.352	0.724
0.340	0.340	3.414	5.178	25.946	1.517	25.639	25.639	0.376	0.733
0.360	0.360	3.947	6.268	28.001	1.588	27.677	27.677	0.399	0.741
0.380	0.380	4.521	7.497	30.057	1.658	29.715	29.715	0.423	0.750
0.400	0.400	5.135	8.872	32.112	1.728	31.752	31.752	0.446	0.757
0.420	0.420	5.791	10.399	34.167	1.796	33.790	33.790	0.470	0.765
0.440	0.440	6.487	12.086	36.223	1.863	35.827	35.827	0.494	0.772
0.460	0.460	7.224	13.937	38.278	1.929	37.865	37.865	0.518	0.779
0.480	0.480	8.002	15.960	40.333	1.995	39.903	39.903	0.542	0.785
0.500	0.500	8.820	18.161	42.388	2.059	41.940	41.940	0.566	0.792
0.520	0.520	9.679	20.545	44.444	2.123	43.978	43.978	0.590	0.798
0.540	0.540	10.579	23.119	46.499	2.185	46.016	46.016	0.614	0.804
0.560	0.560	11.515	26.231	47.554	2.278	47.053	47.053	0.641	0.812
0.580	0.580	12.456	29.879	47.609	2.399	47.091	47.091	0.669	0.822
0.600	0.600	13.399	33.714	47.664	2.516	47.128	47.128	0.698	0.832
0.620	0.620	14.341	37.732	47.719	2.631	47.166	47.166	0.728	0.841
0.640	0.640	15.285	41.927	47.774	2.743	47.204	47.204	0.757	0.850
0.660	0.660	16.230	46.298	47.829	2.853	47.241	47.241	0.787	0.858
0.680	0.680	17.180	50.196	48.843	2.922	48.246	48.246	0.813	0.863
0.700	0.700	18.164	53.646	50.816	2.953	50.219	50.219	0.836	0.866
0.720	0.720	19.188	57.308	52.789	2.987	52.192	52.192	0.859	0.868
0.740	0.740	20.252	61.184	54.762	3.021	54.164	54.164	0.882	0.871
0.760	0.760	21.355	65.279	56.735	3.057	56.137	56.137	0.905	0.874
0.780	0.780	22.497	69.598	58.708	3.094	58.109	58.109	0.929	0.877
0.800	0.800	23.679	74.146	60.681	3.131	60.082	60.082	0.953	0.879
0.820	0.820	24.901	78.928	62.654	3.170	62.055	62.055	0.976	0.882
0.840	0.840	26.162	83.947	64.627	3.209	64.027	64.027	1.000	0.885

Inlets 40, 41

Future Basin 4b = 32.52 cfs
Basin C6 = 2.78 cfs
Partial Basin C5 = 1.59 cfs
TOTAL = 36.89 cfs

Street Capacity
Q = 36.89 cfs
d = .62 < .67'
E = .72' < .90'

Inlet Capacity
@ S = .45%
d = .62
Q inlet = 7.4 cfs

Residual Flow = 36.89- 2*(7.4) = 22.1cfs

Inlet 39

Sump condition:
Residual flow = 22.1 cfs
Partial Basin C5 = 6.26 cfs
TOTAL = 28.36 cfs

ANALYSIS OF AN INLET IN A SUMP CONDITION - **SAGAN LOOP**

INLET TYPE: Double Grate Type "A" with curb opening wings on both sides on inlet.

WEIR: Q=C*L*H^1.5

Wing opening	Grate opening
C= 3.0	C=3.0
L= 4.0 ft	L(double grate)=[2(2.67')+2(1.8')]=8.94 ft
Q=3.0(4.0')H^1.5= 12.0H^1.	Q=3.0(8.94)H^1.5=26.82*H^1.5

ORIFICE: Q=C*A*(2*G*H)^0.5

Grate opening	Wing opening*
C=0.6	C=0.6
A(double grate)=7.14 sf	A=2.0 sf
Q=0.6(7.14)((64.4*H))^0.5	Q=1.2*(64.4*H)^0.5

*not included in the orifice calcs

	WS ELEVATION	HEIGHT ABOVE INLET	Q (CFS) WEIR "A" OPENING	Q (CFS) WEIR DOUBLE GRATE	Q (CFS) ORIFICE DOUBLE GRATE	TOTAL Q (CFS)	COMMENTS:
~FL @ INLET	0.00	0.00	0.00	0.00	0.00	0.00	Flow at double "A" inlet w/ two wing openings
	0.10	0.10	0.38	0.85	10.87	1.61	Weir controls on grate analysis
	0.20	0.20	1.07	2.40	15.37	4.55	
	0.30	0.30	1.97	4.41	18.83	8.35	
	0.40	0.40	3.04	6.78	21.74	12.86	
	0.50	0.50	4.24	9.48	24.31	17.97	
	0.60	0.60	5.58	12.46	26.63	23.62	
TOP OF CURB	0.70	0.70	7.03	15.71	28.76	29.76	Q(100 yr) = 28.36 cfs is provided at this depth
	0.80	0.80	8.59	19.19	30.75	36.36	
ROW LIMIT	0.90	0.90	10.25	22.90	32.61	43.39	Q(2 x100 yr) = 56.72 cfs OVERFLOWS** at this depth
	1.00	1.00	12.00	26.82	34.38	50.82	

NOTE: The total runoff intercepted by the inlet at the low point in the road is:

Qr(100) = 2*[(runoff of the wing opening) + (the lesser of the weir or orifice amount taken by the double grate)].

** This inlet has an emergency overflow into POND 2A

Inlet 39
@ Sump condition

APPENDIX B

INFILTRATION CALCULATIONS

POND INFILTRATION CALCULATIONS:

Per the Original Drainage report:

Infiltration calculations were based on an average of percolation test results performed by Geo-Test, Inc. on a permanent pond immediately north of Albuquerque Studios Mesa del Sol, New Mexico dated May 17, 2007, File No. 1-61211 (see summary tables below). A percolation rate of 0.3 in/hr. was recorded for 24" above ground surface, which was neglected for our average in our infiltration calculations. This was based on the assumption that the ponds would be cleaned and maintained before the point of virtually no infiltration was reached. ***The average infiltration used was 1.74 in/hr.*** *A factor of safety of 1.1 was then used for the infiltration basin and a factor of safety of 2.0 was used for the remaining area of the pond to determine the time to infiltrate the required storm water volume, which is approximately the 2-year storm water volume in* ***Equation 1.***

Equation 1.

$$T_{Drain} = Vol_{req} / ((i\ pond\ (A_{inf\ basin})) + (i\ infiltration\ basin\ (A_{eff})))$$

Where:

Vol_{req} *= Storm Volume (cf)*

$i\ pond$ *= Pond Infiltration rate = i/2.0 (in/hr)*

$i\ infiltration\ basin$ *= Infiltration basin rate= i/1.1 (in/hr)*

$A_{inf\ basin}$ *= Area Infiltration Basin (sf)*

A_{eff} *= Avg Pond Area Minus Infiltration basin (sf)*

POND INFILTRATION SUMMARY

POND	100-YR 10-DAY RETENTION VOLUME (AC-FT)	2-YR RETENTION VOLUME (AC-FT)	AREA OF INFILTRATION BASIN (SF)	AVG AREA OF POND (SF)	TIME TO INFILTRATE 100-YR 10-DAY VOLUME (HR)	TIME TO INFILTRATE 2-YR VOLUME (HR)
1 (Future)	N/A	N/A	N/A	N/A	N/A	N/A
2A	8.29	3.6	1500	100000	49	21
2B	7.66	3.32	1500	50000	92	39
3	8.54	3.71	1500	70000	72	31
4*	19.04	8.26	5000	130000	85	37

*denotes possible future configuration

APPENDIX C

POND VOLUME CALCULATIONS

Pond 2A: AS BUILT
Project: Montage Unit 4
Basin Description:

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
5,294.00	759.0007	N/A	N/A	0	N/A	0
5,295.00	6,496.4904	1.00	3628	3628	3159	3159
5,296.00	15,521.0366	1.00	11009	14637	10686	13845
5,297.00	25,072.6797	1.00	20297	34933	20107	33952
5,298.00	42,363.5936	1.00	33718	68652	33342	67294
5,299.00	59,924.2855	1.00	51144	119795	50891	118185
5,300.00	84,854.3372	1.00	72389	192185	72029	190214

Pond 2B: AS-BUILT
Project: Montage Unit 4
Basin Description:

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
5,289.00	12,478.9924	N/A	N/A	0	N/A	0
5,290.00	16,122.6783	1.00	14301	14301	14262	14262
5,291.00	18,786.6043	1.00	17455	31755	17438	31700
5,292.00	21,202.8257	1.00	19995	51750	19983	51682
5,293.00	23,590.7187	1.00	22397	74147	22386	74068
5,294.00	26,062.4611	1.00	24827	98974	24816	98885
5,295.00	28,575.2261	1.00	27319	126292	27309	126194
5,296.00	31,184.1365	1.00	29880	156172	29870	156064
5,297.00	33,867.6816	1.00	32526	188698	32517	188581
5,298.00	36,671.9663	1.00	35270	223968	35261	223841
5,299.00	39,685.1846	1.00	38179	262146	38169	262010
5,300.00	43,671.2971	1.00	41678	303825	41662	303672

Proposed Pond 2A
Project: Montage Unit 4
Basin Description:

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)	Incremental Volume Conic (cu. ft)	Cumulative Volume Conic (cu. ft)
5,294.000	20,854.86	N/A	N/A	0.00	N/A	0.00
5,295.000	32,595.13	1.000	26724.99	26724.99	26507.44	26507.44
5,296.000	41,640.14	1.000	37117.64	63842.63	37025.46	63532.90
5,297.000	53,401.03	1.000	47520.59	111363.22	47398.84	110931.74
5,298.000	64,637.35	1.000	59019.19	170382.42	58929.86	169861.60
5,299.000	81,800.83	1.000	73219.09	243601.51	73050.87	242912.47
5,300.000	97,355.21	1.000	89578.02	333179.53	89465.27	332377.74

APPENDIX D

BASIN SUMMARY SHEET

BASIN SUMMARY

* *Based on Area of basins in Unit 4 (excluding Unit 3B)*

** *Basins from Original Unit 3 and 4 Basin Map*

Volume for Future Basin 5 from Unit 1 and 2 Existing and Developed Conditions Map

BASIN	AREA	AREA*	REV	PREV	% LAND TREATMENT					DISCHARGE (CFS)				STORMWATER VOLUME			
I.D.	(AC)	(AC)	UNITS	UNITS	A	B	C	AMENDED UNIT 4 REV-D	PREV-D	AMENDED UNIT 4 10 YR	AMENDED UNIT 4 100YR	PREV UNIT 4 100YR*	TOTAL for AMENDED Unit 3 & 4	100 YR 6HR	AMENDED UNIT 4 100 YR 10-DAY	PREV UNIT 4 100Y-10D*	TOTAL for AMENDED Unit 3 & 4
BASIN A																	
Basin A-1	6.0	5.8	34	32	0.0%	22.7%	22.7%	54.6%	53.0%	13.85	22.66	21.83	**22.66**	0.79	1.23	1.17	**1.23**
Basin A-2	5.1	4.7	27	21	0.0%	24.1%	24.1%	51.9%	46.0%	11.51	18.96	17.01	**18.96**	0.66	1.01	0.87	**1.01**
Basin A-3	1.9	4.4	16	17	0.0%	13.4%	13.4%	73.2%	41.0%	5.14	8.07	15.49	**8.07**	0.29	0.48	0.77	**0.48**
Basin A-4*		1.9			0.0%	26.5%	26.5%	47.0%		4.11		6.87	**20.24**	0.24		0.35	**1.09**
Basin A-4a	0.7		0		0.0%	24.9%	24.9%	50.3%	47.0%	1.66	2.74			0.10	0.14		
Basin A-4b	1.3		11		0.0%	12.6%	12.6%	74.8%	47.0%	3.48	5.44			0.20	0.33		
Basin A-5**	0.0	4.4	16	16	0.0%	30.4%	30.4%	39.2%	39.2%	8.97			**23.60**	0.52			**0.75**
Basin A-6*		1.6			0.0%	33.5%	33.5%	33.0%		6.16		5.45	**12.74**	0.18		0.25	**0.83**
Basin A-6	1.6	3.2	5	9	0.0%	24.9%	24.9%	50.3%	33.0%	3.53	5.84			0.41	0.52	0.50	
2/3 Future Basin 1**					0.0%	24.5%	24.5%	51.0%		13.28	0.00	21.93	**21.93**	0.76	0.00	1.16	**0.00**
TOTAL											**63.71**	**66.65**	**106.26**		**3.71**	**3.91**	**5.39**
Previous Unit 3 & 4 Totals:													***121.26***				***6.19***
BASIN B																	
Basin B-1*		2.2			0.0%	23.1%	23.1%	53.9%		5.18		8.48	**34.75**	0.30		0.46	**1.86**
Basin B-1a	1.0		4		0.0%	28.6%	28.6%	42.8%		2.05	3.46			0.12	0.17		**0.17**
Basin B-1b	1.2		8		0.0%	23.1%	23.1%	53.9%		2.84	4.65			0.16	0.25		**0.25**
Basin B-2	2.2	2.2	12	10	0.0%	23.7%	23.7%	52.6%	46.0%	5.05	8.31	7.96	7.96	0.29	0.44	0.41	**0.44**
Basin B-3*		2.9			0.0%	22.4%	22.4%	55.2%		6.76		11.05	**17.49**	0.39		0.60	**0.94**
Basin B-3a	2.4		13		0.0%	23.6%	23.6%	52.8%		5.45	8.96			0.31	0.48		
Basin B-3b	0.7		7		0.0%	23.6%	23.6%	52.8%		1.50	2.47			0.09	0.13		
Basin B-4**	0.0	4.6	23	23	0.0%	25.3%	25.3%	49.5%		10.23			16.97	0.18			**0.89**
Basin B-5**	0.0	6.6	28	28	0.0%	28.1%	28.1%	43.8%		14.00			23.60	0.30			**1.19**
Basin B-6**	0.0	3.7	10	10	0.0%	34.1%	34.1%	31.9%		7.05			12.35	0.41			**0.57**
Basin B-7**	0.0	2.9	11	11	0.0%	29.8%	29.8%	40.4%		5.97			10.17	0.14			**0.50**
1/3 Future Basin 1**					0.0%	24.5%	24.5%	51.0%		6.54		10.80	**0.00**	0.37	0.00	0.57	**0.00**
Future Basin 1a	2.1		n/a		0.0%	24.5%	24.5%	51.0%		4.73	7.81		**7.81**	0.27	0.41		**0.41**
Future Basin 2	6.8	7.7	n/a	n/a	0.0%	24.5%	24.5%	51.0%		15.37	25.39	28.64	25.39	0.88	1.35	1.52	**1.35**
TOTAL											**61.04**	**66.93**	**156.49**		**3.24**	**3.56**	**8.58**
Previous Unit 3 & 4 Totals:													***162.73***				***8.57***
BASIN C																	
Basin C*	0.0	0.8	3	3	0.0%	30.0%	30.0%	40.0%	40.0%	1.64	2.80	2.80	2.80	0.09	0.14	0.14	**0.14**
Basin C-1	2.3		9		0.0%	29.1%	29.1%	41.9%		4.72	8.00			0.27	0.40		
Basin C-2	1.6		9		0.0%	23.2%	23.2%	53.7%		3.72	6.10			0.21	0.33		
Basin C-3	1.6		9		0.0%	23.1%	23.1%	53.9%		3.71	6.08			0.21	0.33		
Basin C-4	4.5		22		0.0%	25.6%	25.6%	48.8%		9.92	16.49			0.57	0.86		
Basin C-5	2.1		3		0.0%	24.9%	24.9%	50.3%		4.75	7.86			0.27	0.41		
Basin C-6	0.7		4		0.0%	23.8%	23.8%	52.4%		1.69	2.78			0.10	0.15		
TOTAL											**47.31**				**2.48**		
Future Basin 4a	3.4		n/a	n/a	0.0%	24.5%	24.5%	51.0%		7.60	12.55			0.44	0.67		
Future Basin 4b	8.7		n/a	n/a	0.0%	24.5%	24.5%	51.0%		19.69	32.52			1.13	1.72		
TOTAL											**45.07**				**2.39**		

EXHIBITS

EXHIBIT 1: UNIT 4 PRELIMINARY PLATS

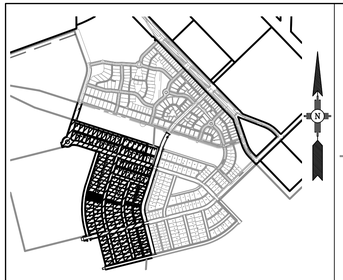
EXHIBIT 2: Amended DEVELOPED CONDITIONS BASIN MAPS

EXHIBIT 3: Amended INLET AND STORM DRAIN ANALYSIS

EXHIBIT 4: GRADING PLAN

EXHIBIT 1

UNIT 4 PRELIMINARY PLATS



VICINITY MAP

NOT TO SCALE ZONE ATLAS R-16 & S-16

DRAINAGE FACILITIES MAINTENANCE NOTES:

Areas designated on the accompanying plat as "drainage easements" ["detention areas"] are hereby dedicated by the owner as a perpetual easement for the common use and benefit of the various lots within the subdivisions for the purpose of permitting the conveyance of storm water runoff and the constructing and maintaining of drainage facilities [storm water detention facilities] in accordance with standards prescribed by the City of Albuquerque. No fence, wall, planting, building or other obstruction may be placed or maintained in easement area without approval of the City Engineer of the City of Albuquerque. There also shall be no alteration of the grades or contours in said easement area without the approval of the City Engineer. It shall be the duty of the lot owners of this subdivision to maintain said drainage easement [detention area] and facilities at their cost in accordance with standards prescribed by the City of Albuquerque. The City shall have the right to enter periodically to inspect the facilities. In the event said lot owners fail to adequately and properly maintain drainage easement [detention area] and facilities, at any time following fifteen (15) days written notice to said lot owners, the City may enter upon said area, perform said maintenance, and the cost of performing said maintenance shall be paid by applicable lot owners proportionately on the basis of lot ownership. In the event lot owners fail to pay the cost of maintenance within thirty (30) days after demand for payment made by the City, the City may file a lien against all lots in the subdivision for which proportionate payment has not been made. The obligations imposed herein shall be binding upon the owner, his heirs, and assigns and shall run with all lots within this subdivision.

The Grantor agrees to defend, indemnify, and hold harmless, the City, its officials, agents and employees from and against any and all claims, actions, suits, or proceedings of any kind brought against said parties for or on account of any matter arising from the drainage facility provided for herein or the Grantor's failure to construct, maintain, or modify said drainage facility.

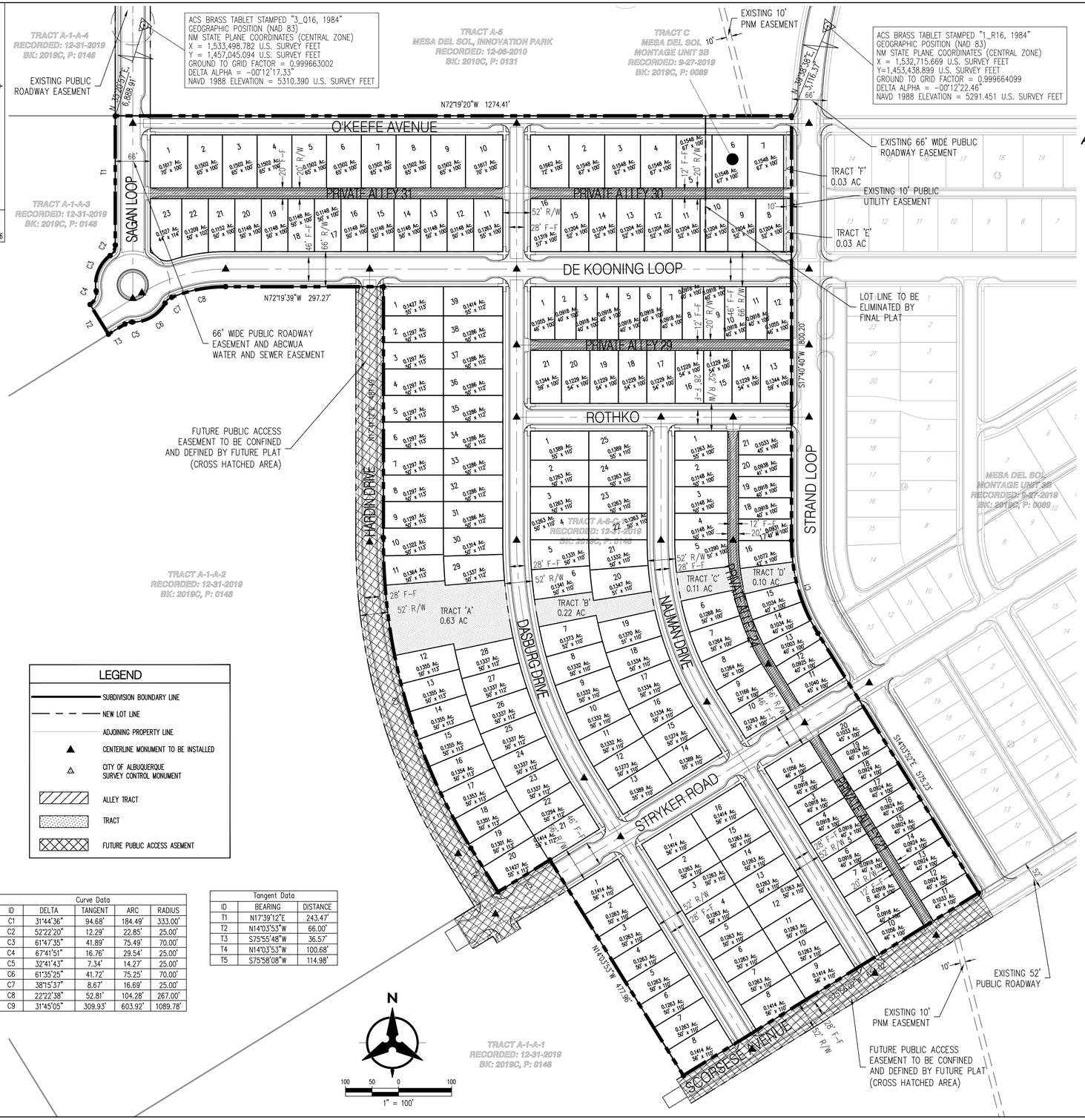
PARKING REQUIREMENTS

1. *OFFSTREET: A MINIMUM OF TWO COVERED PARKING SPACES PER LOT SHALL BE PROVIDED PER THE LEVEL A AND B MASTER PLANS.*

   TOTAL MINIMUM NUMBER OF OFFSTREET PARKING SPACES TO BE PROVIDED: 270 SPACES

2. *ONSTREET: GUEST PARKING WILL BE ACCOMODATED BY ONSTREET PARKING AS PER THE LEVEL A AND B MASTER PLANS:*

   TOTAL ONSTREET PARKING PROVIDED: 250 SPACES



LEGEND

- SUBDIVISION BOUNDARY LINE
- NEW LOT LINE
- ADJOINING PROPERTY LINE
- CENTERLINE MONUMENT TO BE INSTALLED
- CITY OF ALBUQUERQUE SURVEY CONTROL MONUMENT
- ALLEY TRACT
- TRACT
- FUTURE PUBLIC ACCESS ASEMENT

Curve Data				
ID	DELTA	TANGENT	ARC	RADIUS
C1	31°44'36"	94.68'	184.49'	333.00'
C2	52°22'20"	12.29'	22.85'	25.00'
C3	61°47'35"	41.89'	75.49'	70.00'
C4	67°41'51"	16.76'	29.54'	25.00'
C5	32°41'43"	7.34'	14.27'	25.00'
C6	61°35'25"	41.72'	75.25'	70.00'
C7	38°15'37"	8.67'	16.69'	25.00'
C8	22°22'38"	52.81'	104.28'	267.00'
C9	31°45'05"	309.93'	603.92'	1089.78'

Tangent Data		
ID	BEARING	DISTANCE
T1	N17°39'12"E	243.47'
T2	N14°03'53"W	66.00'
T3	S75°55'48"W	36.57'
T4	N14°03'53"W	100.68'
T5	S75°58'08"W	114.98'

PRELIMINARY PLAT OF

MESA DEL SOL MONTAGE UNIT 4

A REPLAT OF TRACT A-6-C-1 BULK LAND PLAT AND TRACT C MESA DEL SOL MONTAGE UNIT 3B

ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO
FEBRUARY, 2020

LEGAL DESCRIPTION

CERTAIN TRACTS OF LAND LOCATED WITHIN SECTIONS 22 AND 27, TOWNSHIP 9 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, BEING AND COMPRISING ALL OF TRACT A-6-C-1 BULK LAND PLAT FILED: DECEMBER 31, 2019 IN BOOK 2019C, PAGE 0146 AS DOCUMENT #2019111900 AND TRACT C MESA DEL SOL MONTAGE UNIT 3B FILD: SEPT. 27, 2019, IN BOOK 2019C, PAGE 0089, AS DOCUMENT #2019082707.

GENERAL NOTES

1. *EXISTING ZONING: PC*
   PROPOSED DEVELOPMENT: RESIDENTIAL
2. *GROSS ACREAGE: 34.04 Acres*
   TOTAL NUMBER OF LOTS/TRACTS: 189 LOTS; 1NCLUDING 5 ALLEY TRACTS
   PROPOSED GROSS DENSITY: 5.55 DU/Ac.
3. *MINIMUM LOT DIMENSIONS: 40' X 100'*
4. *ALL STREETS AND DRAINAGE IMPROVEMENTS ARE TO BE PUBLIC, TO BE DEDICATED FOR MAINTENANCE TO THE CITY OF ALBUQUERQUE.*
5. *ALLEYS ARE TO BE PRIVATE AND OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION*
6. *1.96 MILES OF FULL WIDTH STREETS CREATED*
7. *LOT SETBACKS SHALL CONFORM TO LEVEL A AND LEVEL B MASTER PLANS.*
8. *ALL OF THE PROPERTY SHOWN ON THIS PLAT MAY BE SUBJECT TO A GRANT OF TELECOMMUNICATIONS EASEMENT AND REAL COVENANT FILED IN THE BERNALILLO COUNTY, NEW MEXICO REAL ESTATE RECORDS.*
9. *ZONE ATLAS NO. R-15, R-16 & S-16*
10. *TRACTS A, B, C, D, E AND F ARE PRIVATE COMMON AREA TRACTS TO BE OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.*

ADDITIONAL NOTES

1. *ALL ALLEYS ARE PRIVATE AND WILL HAVE A BLANKET PUE, PRIVATE ACCESS, AND PRIVATE DRAINAGE EASEMENTS*
2. *COVENANTS WILL PROHIBIT PARKING IN ALL ALLEYS*

SURVEY NOTES

1. *UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS (●) SHALL BE MARKED BY A #5 REBAR STAMPED.*
2. *ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT DESIGNATED CENTERLINE PC'S, PT'S, ANGLE POINTS AND STREET INTERSECTIONS AND SHOWN THUS (▲) WILL BE MARKED BY A FOUR (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE, CENTERLINE MONUMENTATION, DO NOT DISTURB, P.L.S. 15517".*
3. *THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN NAD83 CENTRAL ZONE.*
4. *BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE COORDINATE SYSTEM NAD83 CENTRAL ZONE..*
5. *DISTANCES ARE GROUND DISTANCES U.S. SURVEY FOOT.*
6. *MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY, STREET INTERSECTIONS AND ALL OTHER ANGLE POINTS TO ALLOW THE USE OF CENTERLINE MONUMENTATION.*

APPROVED

CITY SURVEYOR	*DATE*
Brian Fennelly, Authorized Signatory, HEKTAR, LLC A Limited Liability Company	*DATE*
Steve Chavez, Authorized Signatory, MDS Investments, LLC A Limited Liability Company	*DATE*

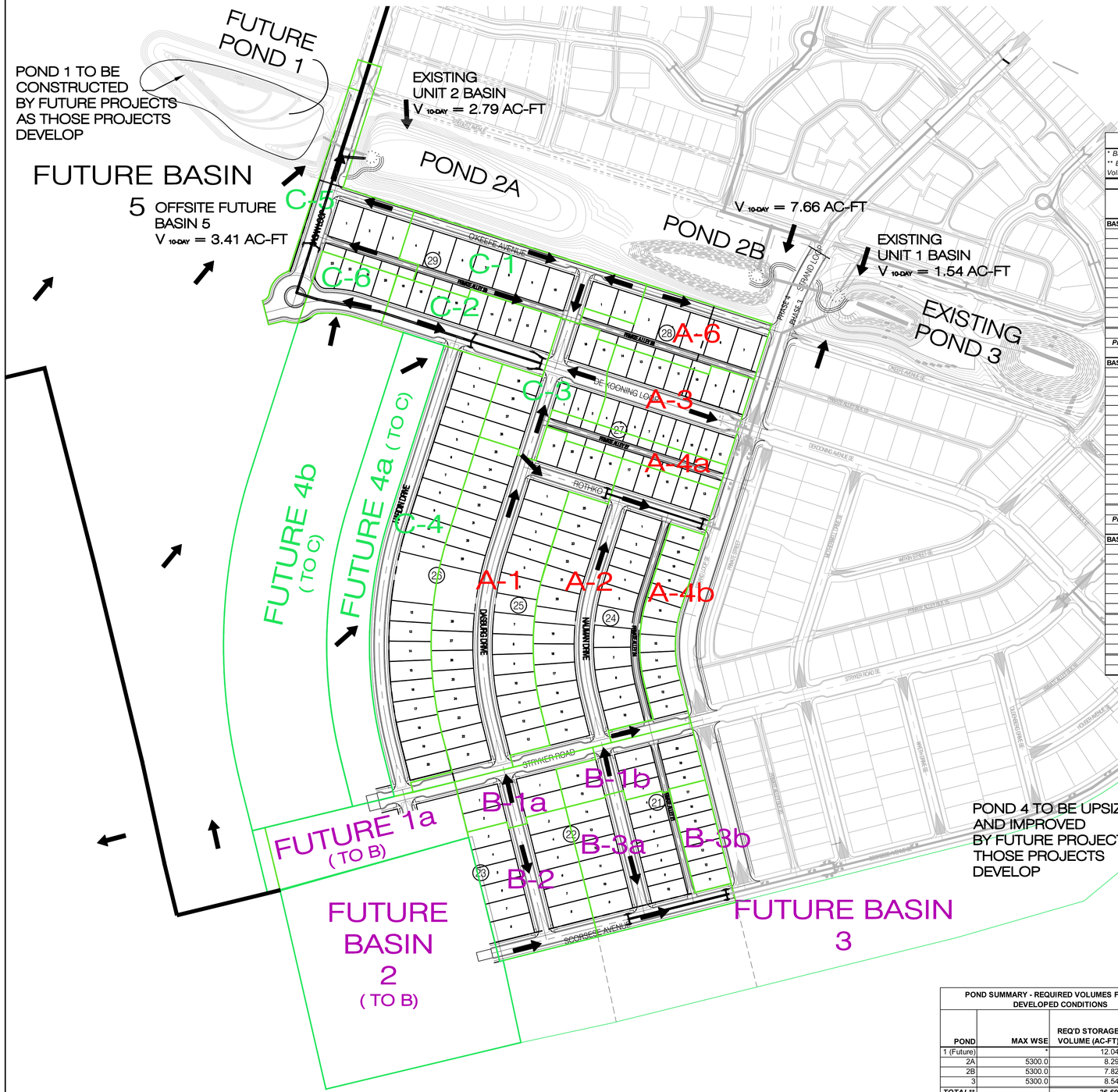
Bohannan Huston
www.bhinc.com 800.877.5332

EXHIBIT 2

Amended
DEVELOPED CONDITIONS BASIN MAPS

MESA DEL SOL NEIGHBORHOOD MONTAGE UNIT 4 DEVELOPED CONDITIONS AMENDED BASIN MAP 05/2020

NOTES:
REVISED FROM ORIGINAL MONTAGE UNITS 3 & 4
DEVELOPED CONDITIONS UPDATED BASIN MAP
09/2019



BASIN SUMMARY

** Based on Area of basins in Unit 4 (excluding Unit 3B)*
*** Basins from Original Unit 3 and 4 Basin Map*
Volume for Future Basin 5 from Unit 1 and 2 Existing and Developed Conditions Map

BASIN	AREA	AREA*	REV	PREV	% LAND TREATMENT					DISCHARGE (CFS)				STORMWATER VOLUME			
I.D.	(AC)	(AC)	UNITS	UNITS	A	B	C	AMENDED UNIT 4 REV-D	PREV-D	AMENDED UNIT 4 10 YR	AMENDED UNIT 4 100YR	PREV UNIT 4 100YR*	TOTAL for AMENDED Unit 3 & 4	100 YR 6HR	AMENDED UNIT 4 100 YR 10-DAY	PREV UNIT 4 100Y-10D*	TOTAL for AMENDED Unit 3 & 4
BASIN A																	
Basin A-1	6.0	5.8	34	32	0.0%	22.7%	22.7%	54.6%	53.0%	13.85	22.66	21.83	**22.66**	0.79	1.23	1.17	**1.23**
Basin A-2	5.1	4.7	27	21	0.0%	24.1%	24.1%	51.9%	46.0%	11.51	18.96	17.01	**18.96**	0.66	1.01	0.87	**1.01**
Basin A-3	1.9	4.4	16	17	0.0%	13.4%	13.4%	73.2%	41.0%	5.14	8.07	15.49	**8.07**	0.29	0.48	0.77	**0.48**
Basin A-4*		1.9			0.0%	26.5%	26.5%	47.0%		4.11		6.87	**20.24**	0.24		0.35	**1.09**
Basin A-4a	0.7		0		0.0%	24.9%	24.9%	50.3%	47.0%	1.66	2.74			0.10	0.14		
Basin A-4b	1.3		11		0.0%	12.6%	12.6%	74.8%	47.0%	3.48	5.44			0.20	0.33		
Basin A-5**	0.0	4.4	16	16	0.0%	30.4%	30.4%	39.2%	39.2%	8.97			**23.60**	0.52			**0.75**
Basin A-6*		1.6			0.0%	33.5%	33.5%	33.0%		6.16		5.45	**12.74**	0.18		0.25	**0.83**
Basin A-6	1.6	3.2	5	9	0.0%	24.9%	24.9%	50.3%	33.0%	3.53	5.84			0.41	0.52	0.50	
2/3 Future Basin 1**					0.0%	24.5%	24.5%	51.0%		13.28	0.00	21.93	**21.93**	0.76	0.00	1.16	**0.00**
TOTAL											**63.71**	**66.65**	**106.26**		**3.71**	**3.91**	**5.39**
Previous Unit 3 & 4 Totals:													***121.26***				***6.19***
BASIN B																	
Basin B-1*		2.2			0.0%	23.1%	23.1%	53.9%		5.18		8.48	**34.75**	0.30		0.46	**1.86**
Basin B-1a	1.0		4		0.0%	28.6%	28.6%	42.8%		2.05	3.46			0.12	0.17		**0.17**
Basin B-1b	1.2		8		0.0%	23.1%	23.1%	53.9%		2.84	4.65			0.16	0.25		**0.25**
Basin B-2	2.2	2.2	12	10	0.0%	23.7%	23.7%	52.6%	46.0%	5.05	8.31	7.96	7.96	0.29	0.44	0.41	**0.44**
Basin B-3*		2.9			0.0%	22.4%	22.4%	55.2%		6.76		11.05	**17.49**	0.39		0.60	**0.94**
Basin B-3a	2.4		13		0.0%	23.6%	23.6%	52.8%		5.45	8.96			0.31	0.48		
Basin B-3b	0.7		7		0.0%	23.6%	23.6%	52.8%		1.50	2.47			0.09	0.13		
Basin B-4**	0.0	4.6	23	23	0.0%	25.3%	25.3%	49.5%		10.23			16.97	0.18			**0.89**
Basin B-5**	0.0	6.6	28	28	0.0%	28.1%	28.1%	43.8%		14.00			23.60	0.30			**1.19**
Basin B-6**	0.0	3.7	10	10	0.0%	34.1%	34.1%	31.9%		7.05			12.35	0.41			**0.57**
Basin B-7**	0.0	2.9	11	11	0.0%	29.8%	29.8%	40.4%		5.97			10.17	0.14			**0.50**
1/3 Future Basin 1**					0.0%	24.5%	24.5%	51.0%		6.54		10.80	**0.00**	0.37	0.00	0.57	**0.00**
Future Basin 1a	2.1		n/a		0.0%	24.5%	24.5%	51.0%		4.73	7.81		**7.81**	0.27	0.41		**0.41**
Future Basin 2	6.8	7.7	n/a	n/a	0.0%	24.5%	24.5%	51.0%		15.37	25.39	28.64	25.39	0.88	1.35	1.52	**1.35**
TOTAL											**61.04**	**66.93**	**156.49**		**3.24**	**3.56**	**8.58**
Previous Unit 3 & 4 Totals:													***162.73***				***8.57***
BASIN C																	
Basin C*	0.0	0.8	3	3	0.0%	30.0%	30.0%	40.0%	40.0%	1.64	2.80	2.80	2.80	0.09	0.14	0.14	**0.14**
Basin C-1	2.3		9		0.0%	29.1%	29.1%	41.9%		4.72	8.00			0.27	0.40		
Basin C-2	1.6		9		0.0%	23.2%	23.2%	53.7%		3.72	6.10			0.21	0.33		
Basin C-3	1.6		9		0.0%	23.1%	23.1%	53.9%		3.71	6.08			0.21	0.33		
Basin C-4	4.5		22		0.0%	25.6%	25.6%	48.8%		9.92	16.49			0.57	0.86		
Basin C-5	2.1		3		0.0%	24.9%	24.9%	50.3%		4.75	7.86			0.27	0.41		
Basin C-6	0.7		4		0.0%	23.8%	23.8%	52.4%		1.69	2.78			0.10	0.15		
TOTAL											**47.31**				**2.48**		
Future Basin 4a	3.4		n/a	n/a	0.0%	24.5%	24.5%	51.0%		7.60	12.55			0.44	0.67		
Future Basin 4b	8.7		n/a	n/a	0.0%	24.5%	24.5%	51.0%		19.69	32.52			1.13	1.72		
TOTAL											**45.07**				**2.39**		

POND 2A SUMMARY - REQUIRED VOLUMES FOR CURRENT BUILDOUT OF UNITS 1,2, 3 AND 4

	100 yr - 10 day Volume (AC-FT)	Notes
Unit 2 (corrected Volume)	2.79	*Additional Volume from upstream basins noted in Unit 1 and 2 Drainage report
Undeveloped Future Basin 4A and 4B	0.56	* Assuming 0.046 ac-ft/ac volume for undeveloped area taken from Unit 1 and 2 Drainage Report
Montage Unit 4 Amended Developed Flows	2.48	
TOTAL	**5.83**	
Offsite flows from West	3.41	* Assuming 0.046 ac-ft/ac volume for undeveloped area taken from Unit 1 and 2 Drainage Report
TOTAL	**9.24**	

POND 2A SUMMARY - REQUIRED VOLUMES FOR FULLY DEVELOPED CONDITIONS

	100 yr - 10 day Volume (AC-FT)	Notes
Unit 2 (corrected Volume)	2.79	*Additional Volume from upstream basins noted in Unit 1 and 2 Drainage report
Developed Future Basin 4A and 4B	2.39	
Montage Unit 4 Amended Developed Flows	2.48	
TOTAL	**7.66**	
Offsite flows from West	0.00	* Assuming 0.046 ac-ft/ac volume for undeveloped area taken from Unit 1 and 2 Drainage Report
TOTAL	**7.7**	

POND SUMMARY - REQUIRED VOLUMES FOR FULLY DEVELOPED CONDITIONS

POND	MAX WSE	REQ'D STORAGE VOLUME (AC-FT)	MAX DEPTH (FT)
1 (Future)	*	12.04	*
2A	5300.0	8.29	7.0
2B	5300.0	7.82	11.0
3	5300.0	8.54	11.0
TOTAL **		***36.69***	
4	5297.0*	19.04	14*

* DENOTES POND TO BE BUILT IN THE FUTURE
** PONDS 1, 2A, 2B AND 3 ARE INTENDED TO ACT AS ONE POND PER APPROVED DRAINAGE PLANS

POND SUMMARY - REQUIRED VOLUMES FOR CURRENT BUILDOUT OF UNITS 1,2, 3 AND 4

POND	MAX WSEL	REQ'D STORAGE VOLUME (AC-FT)	MAX DEPTH (FT)	Existing AVAILABLE VOLUME (AC-FT)	Proposed AVAILABLE VOLUME (AC-FT)
1 (Future)	NOT NEEDED	0.0	N/A	N/A	N/A
2A	5300.0	9.2	7.0	4.5	7.7
2B	5300.0	7.6	11.0	7.0	7.0
3	5300.0	8.5	11.0	11.2	11.2
TOTAL*		***25.4***		***22.7***	***25.9***
4	5291.0	8.62	8.0	10.2	10.2

NOTES:
*** PONDS 1, 2A, 2B AND 3 ARE INTENDED TO ACT AS ONE POND PER APPROVED DRAINAGE PLANS**
1. EXISTING POND 2A IS INTENDED TO CAPTURE OFFSITE FLOWS UNTIL FUTURE POND 1 IS CONSTRUCTED
2. EXISTING POND 4 HAS BEEN CONSTRUCTED
3. POND 2A WILL BE UPSIZED BY THIS PROJECT TO ACCOMMODATE FLOWS FROM UNITS 4, AS WELL AS UNITS 1, 2 AND 3

LEGEND
- PROPOSED BASIN BOUNDARY
- EXISTING BASIN BOUNDARY
- BASIN FLOW DIRECTION

Bohannan Huston
www.bhinc.com 800.877.5332

P:\20200458\COP\Hydro\20200458_Unit 4_PROPOSED basins.dwg
May 21, 2020 – 5:50pm

Exhibit 2-1

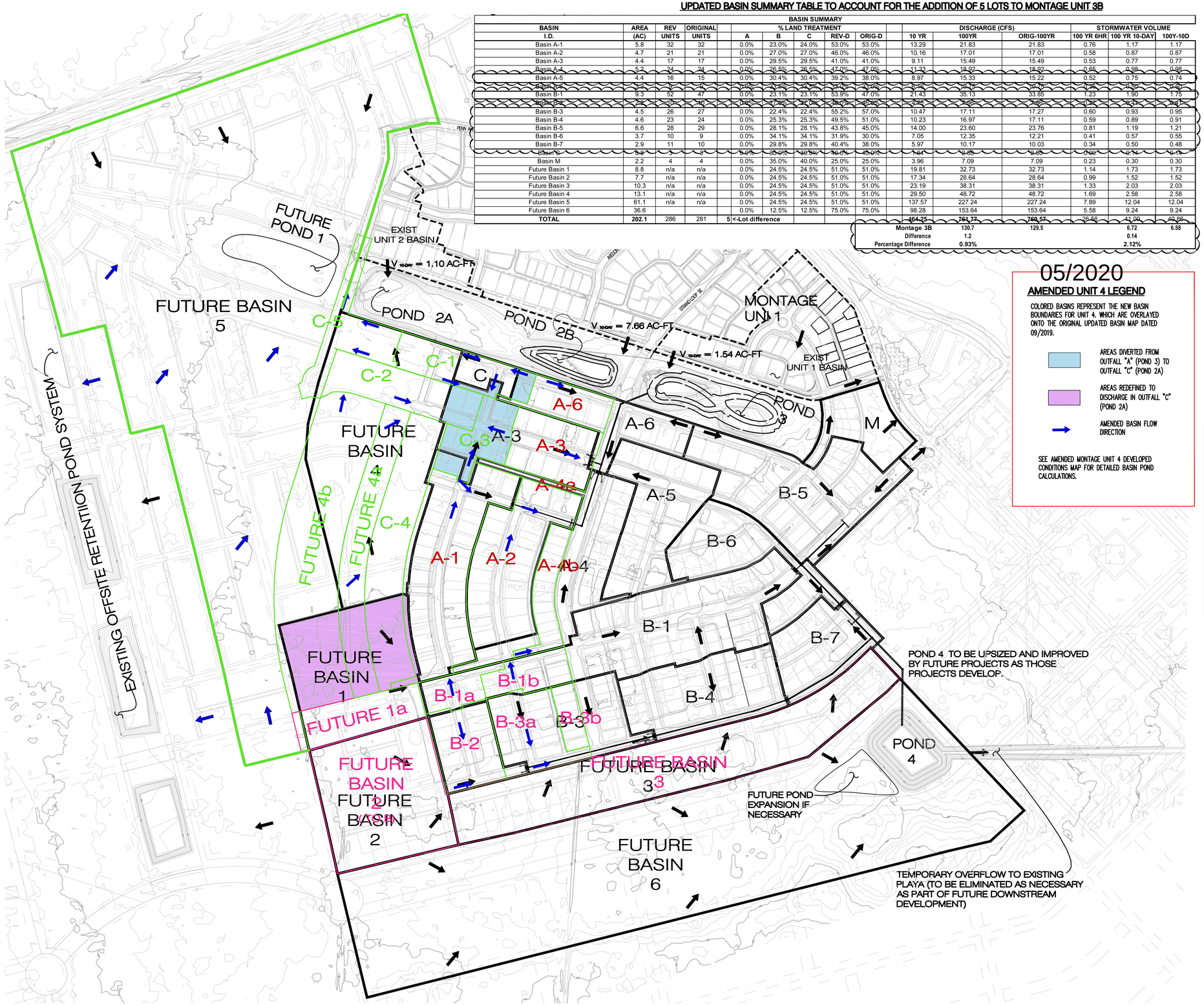
MESA DEL SOL NEIGHBORHOOD MONTAGE UNITS 3 & 4 DEVELOPED CONDITIONS

~~UPDATED BASIN MAP 10/2018~~

UPDATED BASIN MAP 09/2019

UPDATED BASIN SUMMARY TABLE TO ACCOUNT FOR THE ADDITION OF 5 LOTS TO MONTAGE UNIT 3B

BASIN SUMMARY															
BASIN	AREA	REV	ORIGINAL	% LAND TREATMENT					DISCHARGE (CFS)			STORMWATER VOLUME		
I.D.	(AC)	UNITS	UNITS	A	B	C	REV-D	ORIG-D	10 YR	100YR	ORIG-100YR	100 YR 6HR	100 YR 10-DAY	100Y-10D
Basin A-1	5.8	32	32	0.0%	23.0%	24.0%	53.0%	53.0%	13.29	21.83	21.83	0.76	1.17	1.17
Basin A-2	4.7	21	21	0.0%	27.0%	27.0%	46.0%	46.0%	10.16	17.01	17.01	0.58	0.87	0.87
Basin A-3	4.4	17	17	0.0%	29.5%	29.5%	41.0%	41.0%	9.11	15.49	15.49	0.53	0.77	0.77
Basin A-4	5.2	24	24	0.0%	26.5%	26.5%	47.0%	47.0%	11.33	18.92	18.92	0.65	0.98	0.98
Basin A-5	4.4	16	15	0.0%	30.4%	30.4%	39.2%	38.0%	8.97	15.33	15.22	0.52	0.75	0.74
Basin A-6	3.2	9	9	0.0%	33.6%	33.6%	33.4%	33.4%	6.48	10.75	10.75	0.36	0.50	0.50
Basin B-1	9.3	52	47	0.0%	23.1%	23.1%	53.9%	47.0%	21.43	35.13	33.85	1.23	1.90	1.75
Basin B-2	2.2	7	7	0.0%	27.0%	27.0%	46.0%	46.0%	3.44	7.96	7.96	0.27	0.41	0.41
Basin B-3	4.5	28	27	0.0%	22.4%	22.4%	55.2%	57.0%	10.47	17.11	17.27	0.60	0.93	0.95
Basin B-4	4.6	23	24	0.0%	25.3%	25.3%	49.5%	51.0%	10.23	16.97	17.11	0.59	0.89	0.91
Basin B-5	6.6	28	29	0.0%	28.1%	28.1%	43.8%	45.0%	14.00	23.60	23.76	0.81	1.19	1.21
Basin B-6	3.7	10	9	0.0%	34.1%	34.1%	31.9%	30.0%	7.05	12.35	12.21	0.41	0.57	0.55
Basin B-7	2.9	11	10	0.0%	29.8%	29.8%	40.4%	38.0%	5.97	10.17	10.03	0.34	0.50	0.48
Basin C	0.8	3	3	0.0%	35.0%	35.0%	30.0%	30.0%	1.64	2.85	2.80	0.09	0.14	0.14
Basin M	2.2	4	4	0.0%	35.0%	40.0%	25.0%	25.0%	3.96	7.09	7.09	0.23	0.30	0.30
Future Basin 1	8.8	n/a	n/a	0.0%	24.5%	24.5%	51.0%	51.0%	19.81	32.73	32.73	1.14	1.73	1.73
Future Basin 2	7.7	n/a	n/a	0.0%	24.5%	24.5%	51.0%	51.0%	17.34	28.64	28.64	0.99	1.52	1.52
Future Basin 3	10.3	n/a	n/a	0.0%	24.5%	24.5%	51.0%	51.0%	23.19	38.31	38.31	1.33	2.03	2.03
Future Basin 4	13.1	n/a	n/a	0.0%	24.5%	24.5%	51.0%	51.0%	29.50	48.72	48.72	1.69	2.58	2.58
Future Basin 5	61.1	n/a	n/a	0.0%	24.5%	24.5%	51.0%	51.0%	137.57	227.24	227.24	7.89	12.04	12.04
Future Basin 6	36.6			0.0%	12.5%	12.5%	75.0%	75.0%	98.28	153.64	153.64	5.58	9.24	9.24
TOTAL	202.1	286	281	5 <-Lot difference					~~464.25~~	~~764.77~~	~~760.57~~	~~26.58~~	~~41.00~~	~~40.86~~
									Montage 3B	130.7	129.5		6.72	6.58
									Difference	1.2			0.14	
									Percentage Difference	0.93%			2.12%	



05/2020

AMENDED UNIT 4 LEGEND

COLORED BASINS REPRESENT THE NEW BASIN BOUNDARIES FOR UNIT 4. WHICH ARE OVERLAYED ONTO THE ORIGINAL UPDATED BASIN MAP DATED 09/2019.

- AREAS DIVERTED FROM OUTFALL "A" (POND 3) TO OUTFALL "C" (POND 2A)
- AREAS REDEFINED TO DISCHARGE IN OUTFALL "C" (POND 2A)
- AMENDED BASIN FLOW DIRECTION

SEE AMENDED MONTAGE UNIT 4 DEVELOPED CONDITIONS MAP FOR DETAILED BASIN POND CALCULATIONS.

N

200 100 0 200

1" = 200'

LEGEND

- PROPOSED BASIN BOUNDARY
- EXISTING BASIN BOUNDARY
- BASIN FLOW DIRECTION

PREVIOUS BASIN SUMMARY TABLE FROM 2014

BASIN SUMMARY				
BASIN	AREA	DISCHARGE (CFS)	STORMWATER VOLUME	
I.D.	(AC)	100YR	100 YR 6HR	100 YR 10-DAY
Basin A-1	5.8	21.83	0.76	1.17
Basin A-2	4.7	17.01	0.58	0.87
Basin A-3	4.4	15.49	0.53	0.77
Basin A-4	5.2	18.92	0.65	0.98
Basin A-5	4.4	15.22	0.51	0.74
Basin A-6	3.2	10.75	0.36	0.50
Basin B-1	9.3	33.85	1.16	1.75
Basin B-2	2.2	7.96	0.27	0.41
Basin B-3	4.5	17.27	0.61	0.95
Basin B-4	4.6	17.11	0.59	0.91
Basin B-5	6.6	23.76	0.81	1.21
Basin B-6	3.7	12.21	0.40	0.55
Basin B-7	2.9	10.03	0.34	0.48
Basin C	0.8	2.80	0.09	0.14
Basin M	2.2	7.09	0.23	0.30
Future Basin 1	8.8	32.73	1.14	1.73
Future Basin 2	7.7	28.64	0.99	1.52
Future Basin 3	10.3	38.31	1.33	2.03
Future Basin 4	13.1	48.72	1.69	2.58
Future Basin 5	61.1	227.24	7.89	12.04
Future Basin 6	36.6	153.64	5.58	9.24

POND SUMMARY - FULLY DEVELOPED CONDITIONS			
POND	MAX WSE	REQ'D STORAGE VOLUME (AC-FT)	MAX DEPTH (FT)
1 (Future)	*	12.04	*
2A	5300.0	3.98	5.5
2B	5300.0	7.82	11.0
3	5300.0	8.54	11.0
4	5297.0'	19.04	14*

* Denotes pond to be designed in future

POND SUMMARY - REQUIRED VOLUMES FOR UNITS 3 AND 4				
POND	MAX WSE	REQ'D STORAGE VOLUME (AC-FT)	MAX DEPTH (FT)	MAX AVAILABLE VOLUME (AC-FT)
1 (Future)	NOT NEEDED	0.00	N/A	N/A
2A	5300.0	3.98	N/A	4.1
2B	5300.0	7.82	11.0	10.1
3	5300.0	8.54	11.0	10.1
4	5291.0	6.39	8.0	10.2

NOTES:

1. EXISTING POND 2A HAS ALREADY BEEN CONSTRUCTED AND CERTIFIED TO THE ABOVE VOLUME.
2. EXISTING POND 4 HAS BEEN CONSTRUCTED, AND CERTIFIED TO THE ABOVE VOLUME.
3. PONDS 2B AND 3 WILL BE UPSIZED BY THIS PROJECT TO ACCOMMODATE FLOWS FROM UNITS 3 AND 4 AS WELL AS EXISTING UNITS 1 AND 2.

Bohannan Huston
www.bhinc.com 800.877.5332

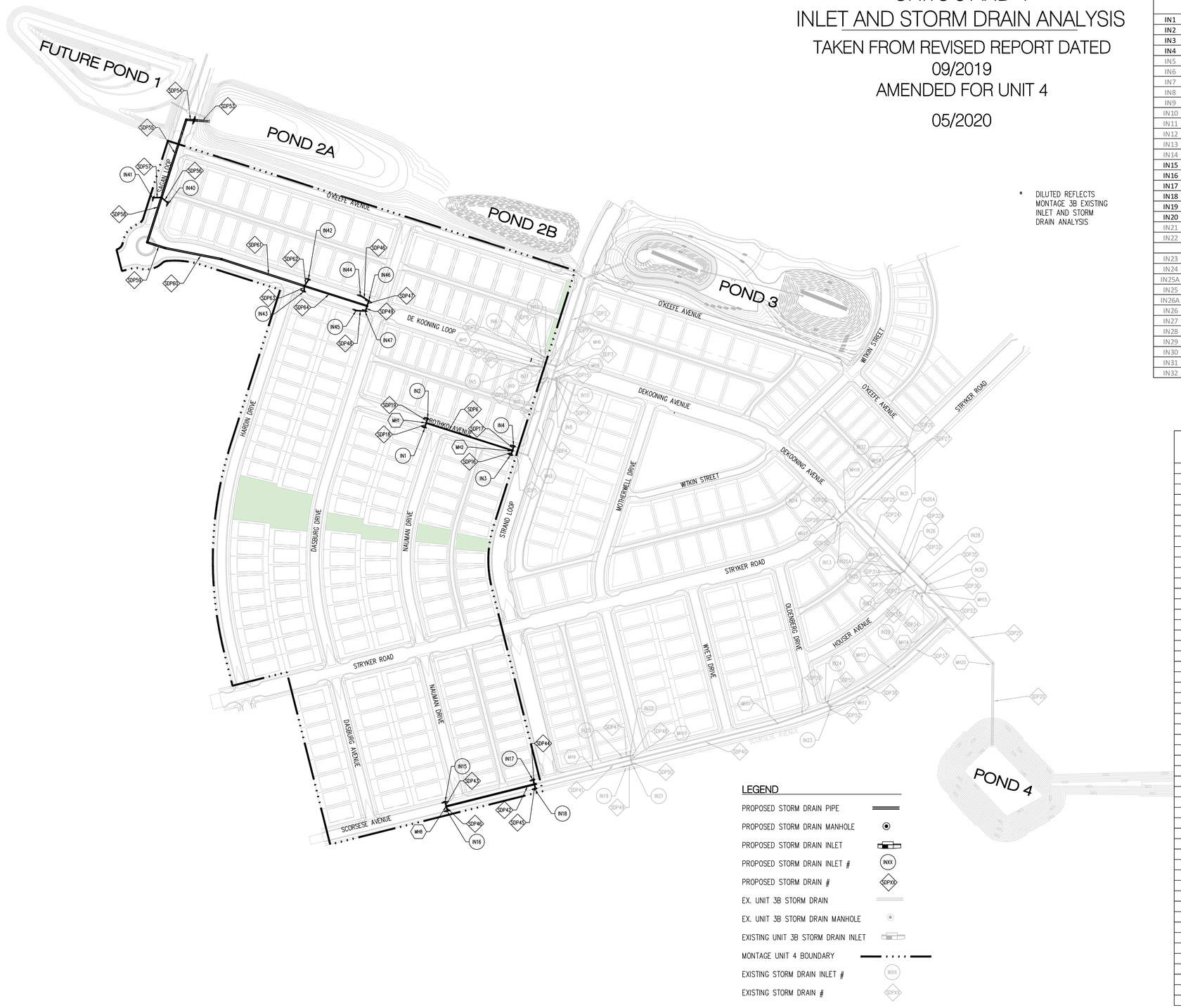
P:\20200458\CDP\Hydro\Unit 3-4 Original Master Plan_DEV BASIN MAP.dwg
May 21, 2020 - 6:47pm

Exhibit 2-2

EXHIBIT 3

Amended
INLET AND STORM DRAIN ANALYSIS

MESA DEL SOL MONTAGE
UNITS 3 AND 4
INLET AND STORM DRAIN ANALYSIS
TAKEN FROM REVISED REPORT DATED 09/2019
AMENDED FOR UNIT 4
05/2020



* DILUTED REFLECTS MONTAGE 3B EXISTING INLET AND STORM DRAIN ANALYSIS

LEGEND

- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN INLET # (INXX)
- PROPOSED STORM DRAIN # (SDPXX)
- EX. UNIT 3B STORM DRAIN
- EX. UNIT 3B STORM DRAIN MANHOLE
- EXISTING UNIT 3B STORM DRAIN INLET
- MONTAGE UNIT 4 BOUNDARY
- EXISTING STORM DRAIN INLET # (INXX)
- EXISTING STORM DRAIN # (SDPXX)

SUMMARY OF INLET FLOWS

ID	STREET SLOPE	STREET FLOW DEPTH (ft)	STREET FLOW UPSTREAM OF INLET (cfs)	REVISED STREET FLOW UPSTREAM OF INLET (cfs)	FLOW CAPTURED BY INLET (cfs)	REVISED FLOW CAPTURED BY INLET (cfs)	STREET FLOW BYPASSING INLET (cfs)	REVISED STREET FLOW BYPASSING INLET (cfs)
IN1	0.60%	0.52	22.7	11.4	9.5	5.0	13.2	6.4
IN2	0.60%	0.52	22.7	11.4	9.5	5.0	13.2	6.4
IN3	0.60%	0.58	21.7	16.2	9.2	6.2	12.50	10.0
IN4	0.60%	0.58	21.7	16.2	9.2	6.2	12.50	10.0
IN5	SUMP	0.60	13.3	10.6	13.3	10.6	N/A	N/A
IN6	SUMP	0.60	13.3	10.6	13.3	10.6	N/A	N/A
IN7	0.75%	0.60	22.0	20.2	9.2	9.2	12.8	11.0
IN8	0.75%	0.60	22.0	20.2	9.2	9.2	12.8	11.0
IN9	0.75%	0.51	12.8	11.0	7.0	7.0	5.8	4.0
IN10	0.75%	0.51	12.8	11.0	7.0	7.0	5.8	4.0
IN11	SUMP	0.60	13.3	10.6	13.3	10.6	N/A	N/A
IN12	SUMP	0.60	13.3	10.6	13.3	10.6	N/A	N/A
IN13	0.60%	0.63	22.1		9.3		12.80	
IN14	0.60%	0.63	22.1		9.3		12.80	
IN15	0.50%	0.65	22.1	21.0	10.0	7.7	12.1	13.3
IN16	0.50%	0.65	22.1	21.0	10.0	7.7	12.1	13.3
IN17	0.50%	0.65	12.1	21.6	6.3	7.7	5.8	13.9
IN18	0.50%	0.65	12.1	21.6	6.3	7.7	5.8	13.9
IN19	0.50%	0.64	19.9	19.4	8.9	8.9	11.0	10.5
IN20	0.50%	0.64	19.9	19.4	8.9	8.9	11.0	10.5
IN21	0.50%	0.52	11.0		6.0		5.00	
IN22	0.50%	0.52	11.0		6.0		5.00	
IN23	0.50%	0.63	19.1		8.9		10.20	
IN24	0.50%	0.63	19.1		8.9		10.20	
IN25A	0.75%	0.59	18.9		7.6		11.30	
IN25	0.75%	0.59	11.3		8.8		2.50	
IN26A	0.75%	0.59	18.9		7.6		11.30	
IN26	0.75%	0.59	11.3		8.8		2.50	
IN27	DELETED							
IN28	SUMP	0.40	8.9		8.9		N/A	
IN29	SUMP	0.51	17.7		17.7		N/A	
IN30	SUMP	0.40	8.9		8.9		N/A	
IN31	SUMP	0.55	11.9		11.9		N/A	
IN32	SUMP	0.55	11.9		11.9		N/A	

SUMMARY OF PIPE FLOWS

ID	SIZE INCHES	SLOPE (%)	Q (cfs) ALLOWABLE	Q (cfs) ACTUAL	Revised Q
SDP1	48	1.00%	143.8	122.8	97.2
SDP2	48	1.00%	143.8	122.8	97.2
SDP3	42	1.00%	100.6	69.8	54.8
SDP4	36	1.00%	66.7	37.4	22.4
SDP5	36	1.00%	66.7	37.4	22.4
SDP6	24	1.80%	30.7	19.0	10.0
SDP7	36	1.00%	66.7	53.0	42.4
SDP8	18	1.40%	12.5	13.3	
SDP9	24	39.30%	141.7	26.5	
SDP10	18	1.40%	12.5	13.3	5.0
SDP11	24	40.50%	143.9	26.5	5.0
SDP12	18	1.20%	11.7	9.2	9.2
SDP13	24	46.30%	153.9	16.2	16.2
SDP14	18	1.20%	11.7	9.2	9.2
SDP15	24	47.70%	156.3	16.2	16.2
SDP16	18	43.70%	69.5	9.2	6.2
SDP17	18	42.30%	68.3	9.2	6.2
SDP18	18	10.40%	33.9	9.5	5.0
SDP19	18	10.40%	33.9	9.5	5.0
SDP20	60	0.85%	239.9	191.0	
SDP21	60	0.85%	239.9	191.0	
SDP22	48	0.85%	132.4	110.8	
SDP23	42	0.85%	92.8	60.0	
SDP24	42	0.85%	92.8	42.4	
SDP25	36	1.10%	70.8	23.8	
SDP26	18	7.80%	29.4	11.9	
SDP27	18	4.20%	21.6	11.9	
SDP28	24	18.40%	96.9	18.6	
SDP29	18	9.30%	32.0	9.3	
SDP30	18	8.80%	31.1	9.3	
SDP31	18	42.20%	68.2	8.8	
SDP32	18	41.40%	67.6	8.8	
SDP33	18	1.30%	11.8	12.7	
SDP34	24	45.10%	151.9	25.4	
SDP35	18	1.30%	11.8	12.7	
SDP36	24	44.20%	150.5	25.4	
SDP37	48	1.00%	143.6	80.2	
SDP38	48	1.00%	143.6	80.2	
SDP39	36	1.00%	66.7	62.4	
SDP40	36	1.00%	66.7	62.4	
SDP41	36	1.00%	66.7	32.6	30.8
SDP42	36	1.10%	69.2	32.6	15.4
SDP43	24	9.40%	69.4	16.3	7.7
SDP44	18	1.50%	12.8	10	7.7
SDP45	18	1.50%	12.8	10	7.7
SDP46	24	9.10%	68.2	16.3	7.7
SDP47	18	1.10%	11	8.9	
SDP48	24	47.50%	155.9	14.9	
SDP49	18	1.10%	11	8.9	
SDP50	24	45.90%	153	14.9	
SDP51	18	82.80%	95.6	8.9	
SDP52	18	79.60%	93.7	8.9	

SUMMARY OF PIPE FLOWS New SD

ID	SIZE	SLOPE (%)	Q (cfs) ALLOWABLE	Q (cfs) ACTUAL
SDP53	42	1.74%	132.7	95.5
SDP54	42	0.96%	98.6	64.0
SD55	42	0.50%	71.1	64.0
SD56	18	11.03%	34.9	7.4
SD57	18	10.49%	34.0	7.4
SD58	42	0.50%	71.1	49.2
SD59	42	0.50%	71.1	49.2
SD60	42	0.50%	71.1	49.2
SD61	42	0.50%	71.1	49.2
SD62	18	12.53%	37.2	6.6
SD63	18	15.17%	40.9	6.6
SD64	36	0.50%	47.2	36.0
SD65	18	1.19%	11.5	9.0
SD66	18	8.54%	30.7	9.0
SD67	18	3.51%	19.7	9.0
SD68	18	11.87%	36.2	9.0

SUMMARY OF INLET FLOWS New SD

ID	STREET SLOPE	STREET FLOW DEPTH	STREET FLOW UPSTREAM OF INLET (cfs)	FLOW CAPTURE D BY	STREET FLOW BYPASSIN
IN39	0.62%	Sump	31.52	31.52	0
IN40	0.40%	0.62	18.6	7.4	11.2
IN41	0.40%	0.62	18.6	7.4	11.2
IN42	0.45%	0.60	16.4	6.9	9.5
IN43	0.45%	0.60	16.4	6.9	9.5
IN44	0.62%	Sump	9.0	9.0	0.0
IN45	0.62%	Sump	9.0	9.0	0.0
IN46	0.62%	Sump	9.0	9.0	0.0
IN47	0.62%	Sump	9.0	9.0	0.0

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EXHIBIT 4

UNIT 4 GRADING PLAN

GENERAL NOTES

1. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE, CITY OF ALBUQUERQUE PUBLIC WORKS STANDARDS SHALL APPLY.

2. THE CONTRACTOR SHALL ABIDE BY ALL LOCAL, STATE, AND FEDERAL LAWS, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA REQUIREMENTS WITH RESPECT TO STORM WATER DISCHARGE.

3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL POTENTIAL OBSTRUCTIONS INCLUDING ALL UNDERGROUND UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER OR ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.

4. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES.

5. ALL ELECTRICAL, TELEPHONE, CABLE TV, GAS AND OTHER UTILITY LINES, CABLES, AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION, SHALL BE COORDINATED WITH THAT UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS OR INCONVENIENCES CAUSED BY UTILITY COMPANY WORK CREWS. THE CONTRACTOR MAY BE REQUIRED TO RESCHEDULE HIS ACTIVITIES TO ALLOW UTILITY CREWS TO PERFORM THEIR REQUIRED WORK.

6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. ANY DAMAGE TO EXISTING FACILITIES CAUSED BY CONSTRUCTION ACTIVITY SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE AND APPROVED BY THE CONSTRUCTION OBSERVER.

7. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT PROPERTIES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

8. OVERNIGHT PARKING OF CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS OR DESIGNATED TRAFFIC LANES. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY.

9. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION (I.E., BARRICADING, TOPSOIL DISTURBANCE, EXCAVATION PERMITS, EPA STORM WATER PERMITS, ETC.).

10. ALL PROPERTY CORNERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ALL PROPERTY CORNERS MUST BE RESET BY A REGISTERED LAND SURVEYOR.

11. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN AND OBTAIN APPROVAL OF SUCH PLAN FROM THE CITY OF ALBUQUERQUE, TRAFFIC ENGINEERING DEPARTMENT, PRIOR TO BEGINNING ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.

12. ALL BARRICADES AND CONSTRUCTION SIGNING SHALL CONFORM TO APPLICABLE SECTIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), US DEPARTMENT OF TRANSPORTATION, LATEST EDITION.

13. THE CONTRACTOR SHALL MAINTAIN ALL CONSTRUCTION BARRICADES AND SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND BEGINNING OF EACH DAY.

14. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO CONFORM WITH EPA REQUIREMENTS, INCLUDING COMPLIANCE WITH NPDES PHASE 2 REQUIREMENTS.

GRADING NOTES

1. EXCEPT AS PROVIDED HERIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.

2. CONTRACTOR SHALL OBTAIN AND ABIDE BY A TOPSOIL DISTURBANCE PERMIT FROM THE CITY OF ALBUQUERQUE ENVIRONMENTAL HEALTH DIVISION, PRIOR TO CONSTRUCTION. THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.

3. ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SOILS REPORT PREPARED BY NV5 DATED DEC. 11, 2018. ALL OTHER WORK, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS (FIRST PRIORITY), AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).

4. TWO WORKING DAYS PRIOR TO EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE (765-1264) FOR LOCATION OF EXISTING UTILITIES.

5. PRIOR TO GRADING, ALL VEGETATION DEBRIS, AND NEAR SURFACE ORGANICALLY CONTAMINATED SOIL SHALL BE STRIPPED FROM ALL AREAS TO BE GRADED. VEGETATION AND DEBRIS SHALL BE DISPOSED OF OFF-SITE OR STOCK-PILED FOR USE IN PLANTERS AND NON-STRUCTURAL FILLS.

6. EARTH SLOPES SHALL NOT EXCEED 4 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.

7. IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.

8. THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES WETTING THE SOIL TO PROTECT IT FROM WIND EROSION.

9. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION AND UNSUITABLE MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT, AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

10. PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATIONS.

11. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED. VALLEY GUTTER ELEVATIONS ARE SHOWN AT FLOWLINE ELEVATION.

AS-BUILT INFORMATION
CONTRACTOR DATE
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICROFILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
KELLY M. KLEIN
24834
05/22/2020

No.	Date	REMARKS	By

REVISIONS
DESIGN
Designed By: KMK DATE: 05/2020
Drawn By: RV DATE: 05/2020
Checked By: KMK DATE: 05/2020

Bohannan Huston
www.bhinc.com
800.877.5332

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTAGE UNIT 4
OVERALL GRADING PLAN

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
PR-2020-003422	R-15,16,S-16	1	6

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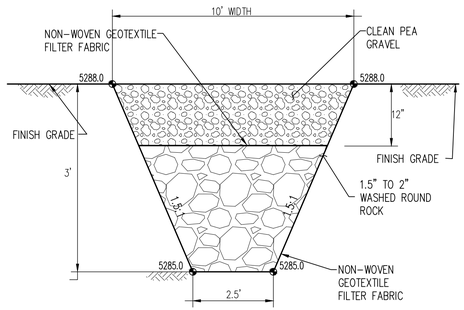

SECTION X-X, INFILTRATION BASIN SECTION (TYP.)
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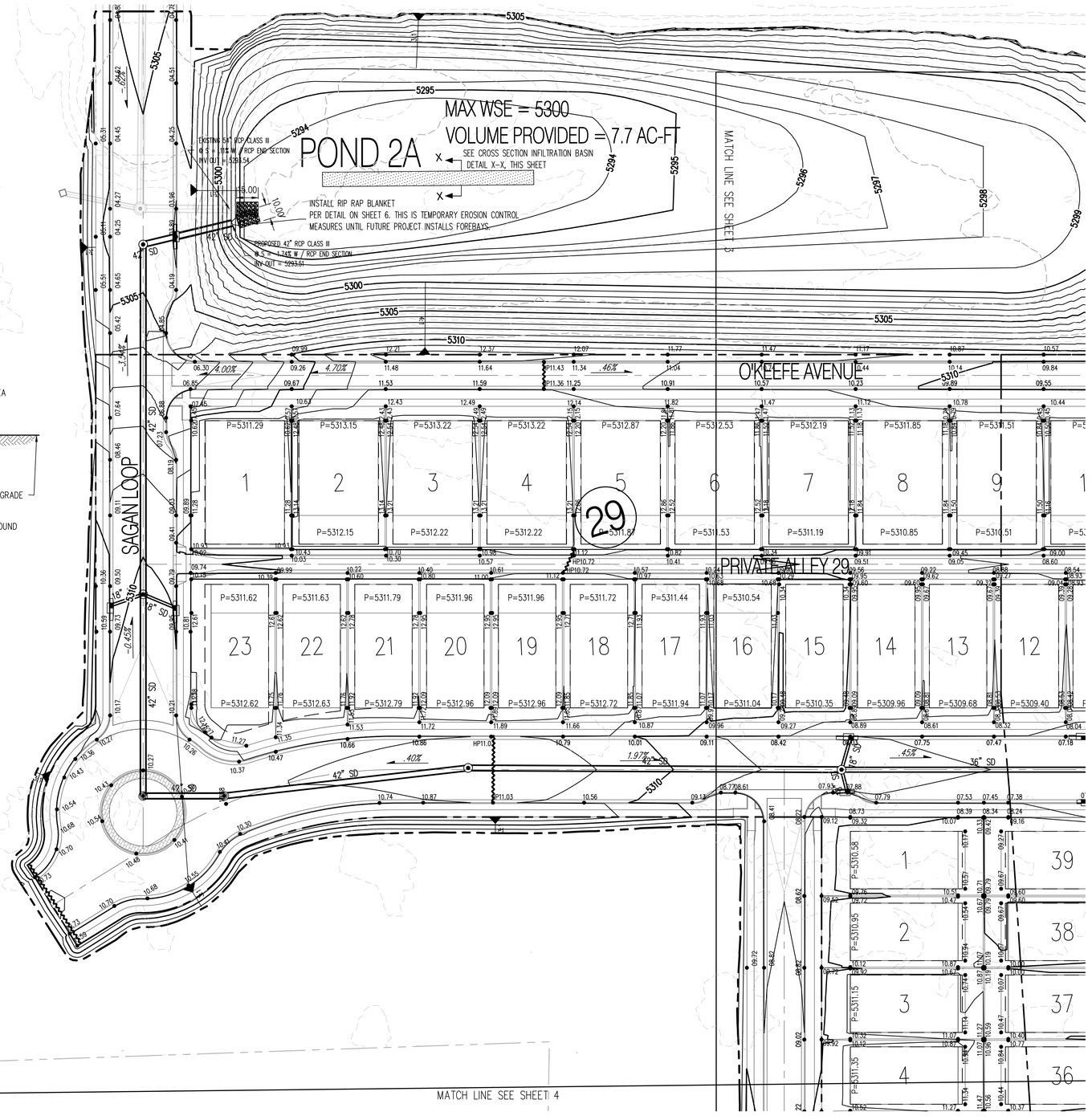

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N

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1"=40'

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CORRECTED BY	DATE

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FIELD NOTES

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MICROFILM INFORMATION

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ENGINEER'S SEAL

KELLY M. KLEIN
NEW MEXICO
24834
05/22/2020
LICENSED PROFESSIONAL ENGINEER

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		Designed By: KMK	DATE:05/2020
		Drawn By: RV	DATE:05/2020
		Checked By: KMK	DATE:05/2020

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTAGE UNIT 4
GRADING PLAN

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
PR-2020-003422	R-15,16,S-16	2	6

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May 22, 2020 - 10:59am

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N

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1"=40'

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

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GRADING PLAN

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City Project No.	Zone Map No.	Sheet	Of
PR-2020-003422	R-15,16,S-16	3	6

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PUBLIC WORKS DEPARTMENT

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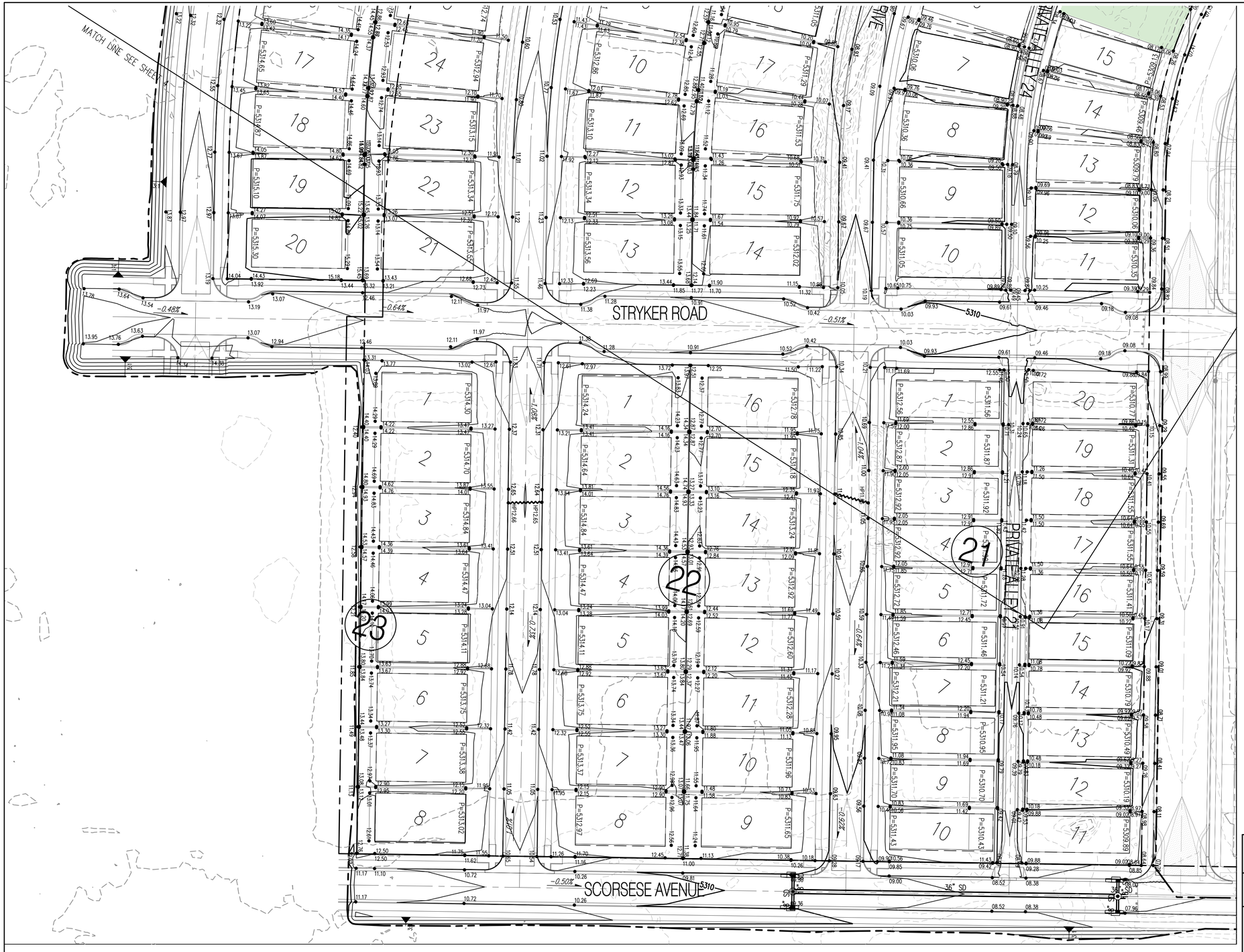

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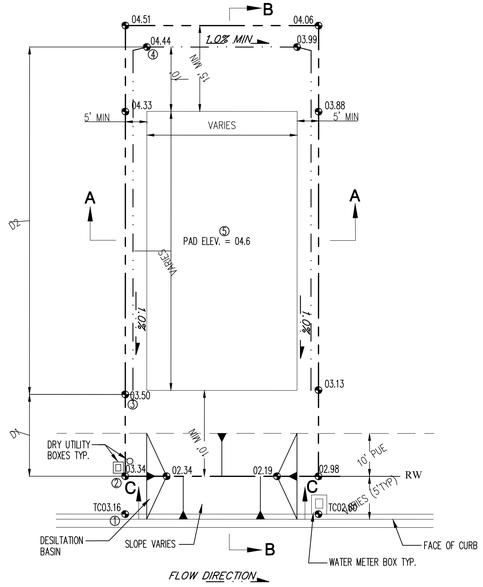
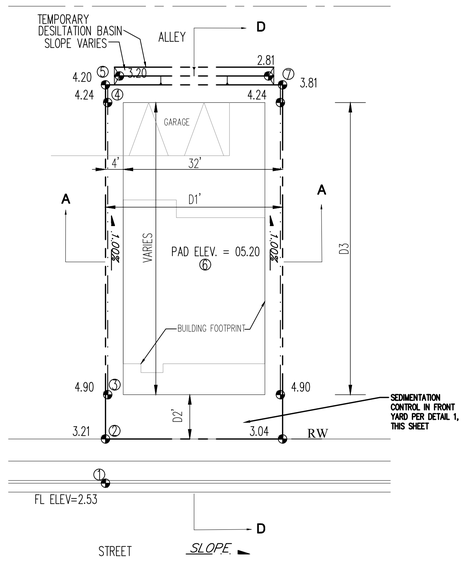


(1) TYPICAL LOT GRADE DETAIL WITH DESILTATION BASIN FOR SEDIMENTATION CONTROL

NOT TO SCALE

TO SET SPOT② – ADD 0.17' TO SPOT①
TO SET SPOT③ – MULTIPLY D1 BY 1.0% MIN. AND ADD TO SPOT②
TO SET SPOT④ – MULTIPLY D2 BY 1.0% AND ADD TO SPOT③
TO SET SPOT⑤ – ADD 0.2' TO SPOT④

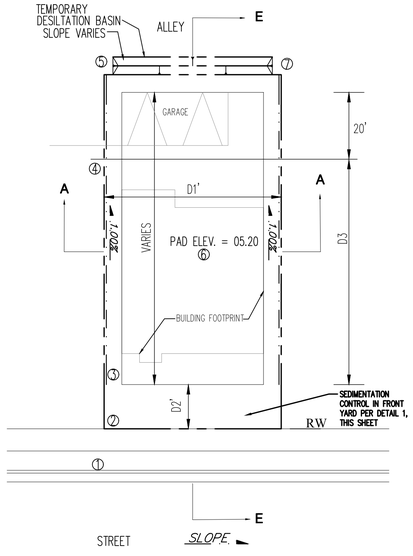
BOTTOM OF BASIN IS 1' BELOW PROPERTY LINE ELEVATION.
SEE GRADING PLANS FOR EXACT ELEVATIONS.
CONTRACTOR SHALL CONSTRUCT TEMPORARY DESILTATION BASIN AT EACH LOT.



TYPICAL LOT GRADE DETAIL WITH DESILTATION BASIN FOR SEDIMENTATION CONTROL

STREET PRODUCT TYPE w/ALLEY

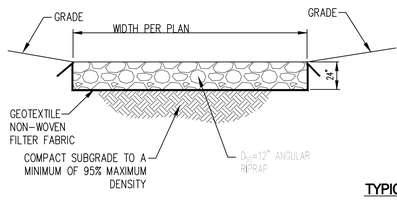
TO SET SPOT② – ADD 0.86' TO SPOT①
TO SET SPOT③ – MULTIPLY D3 BY 1.00% MIN AND ADD TO SPOT④
TO SET SPOT④ – ADD 1.05' TO SPOT②
TO SET SPOT⑤ – SLOPE DOWN TO ROW
TO SET SPOT⑥ – ADD 0.01' TO SPOT④
TO SET SPOT⑦ – MULTIPLY D1 BY 1.00% AND SUBTRACT FROM SPOT⑤



TYPICAL LOT GRADE DETAIL WITH DESILTATION BASIN FOR SEDIMENTATION CONTROL

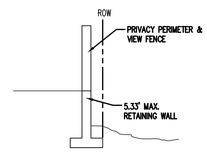
STREET PRODUCT TYPE w/ALLEY

TO SET SPOT② – ADD 0.90' TO SPOT①
TO SET SPOT③ – MULTIPLY D3 BY 1.00% AND ADD TO SPOT④
TO SET SPOT④ – ADD 1.05' TO SPOT②
TO SET SPOT⑤ – SLOPE DOWN TO TO ROW
TO SET SPOT⑥ – ADD 0.01' TO SPOT③
TO SET SPOT⑦ – MULTIPLY D1 BY 1.00% AND SUBTRACT FROM SPOT⑤



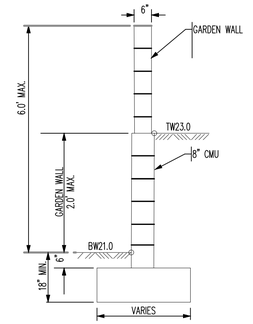
TYPICAL RIP RAP BLANKET

NOT TO SCALE



TYPICAL CROSS SECTION OF WALL AT ROW

NOT TO SCALE

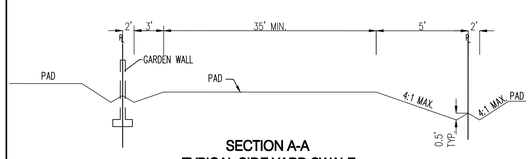


TW=FINISHED GRADE ELEVATION AT TOP OF RETAINING WALL
BW=FINISHED GRADE ELEVATION AT BOTTOM OF RETAINING WALL

TYPICAL GARDEN WALL NOMENCLATURE

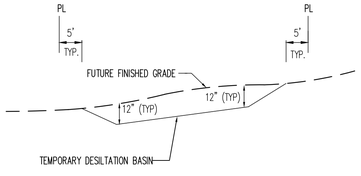
NOT TO SCALE

(RETAINING HEIGHT IS TAKEN TO BE DIFFERENCE IN FINISHED GRADES ON LEFT AND RIGHT SIDE OF WALL.)



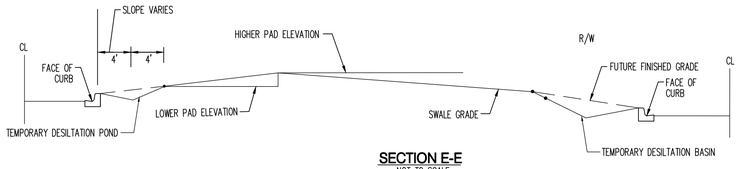
SECTION A-A TYPICAL SIDE YARD SWALE

NOT TO SCALE



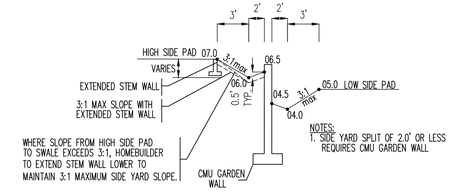
SECTION C-C

NOT TO SCALE



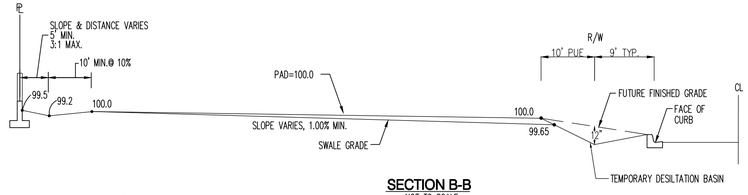
SECTION E-E

NOT TO SCALE



SIDE YARD GARDEN WALL DETAIL

NOT TO SCALE



SECTION B-B

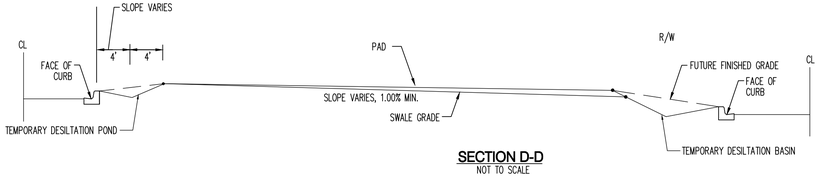
NOT TO SCALE

NOTE:

1. CONTRACTOR IS TO MASS GRADE ROADS TO 2' BEYOND FUTURE CURB. EXCESS FROM DRY UTILITY TRENCH IS TO BE USED TO BACK FILL BEHIND CURB.

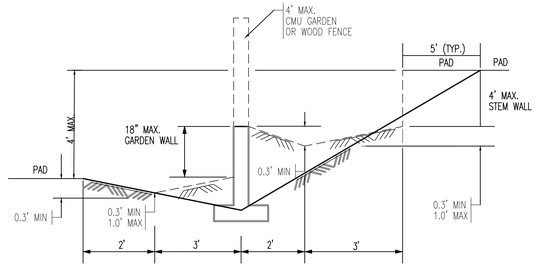
2. FRONT YARDS ARE TO BE GRADED AS SHOWN ON THIS DETAIL FOR FINAL GRADING AND CERTIFICATION THIS DETAIL TO BE COORDINATED WITH.

3. HOME BUILDER TO BRING FRONT YARD TO ULTIMATE FRONT YARD GRADES AFTER HOME CONSTRUCTION IS COMPLETED. SEE ULTIMATE FRONT YARD GRADING DETAIL ON THIS SHEET.



SECTION D-D

NOT TO SCALE



TYPICAL SIDE LOT LINE SECTION

NOT TO SCALE

NOTE: DASHED LINES IN TYP. SIDE LOT LINE SECTIONS REPRESENT THE FINAL CONDITION AFTER THE GARDEN, STEM, AND PRIVACY WALLS HAVE BEEN CONSTRUCTED. THE INTERIM CONDITION, WHICH IS TO BE CONSTRUCTED BY THE GRADING CONTRACTOR AND CERTIFIED BY THE ENGINEER, IS REPRESENTED BY THE SOLID LINES. RETAINING WALLS WILL BE CONSTRUCTED PRIOR TO GRADING CERTIFICATION.

AS-BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES — BY — DATE — NO.

ENGINEER'S SEAL
KELLY M. KLEIN — NEW MEXICO — 24834 — 05/22/2020 — REGISTERED PROFESSIONAL ENGINEER

MICROFILM INFORMATION
RECORDED BY — DATE
NO.

No.	Date	By	REMARKS
			REVISIONS
			DESIGN

Designed By: KMK — DATE:05/2020
Drawn By: RV — DATE:05/2020
Checked By: KMK — DATE:05/2020

Bohannan Huston
www.bhinc.com 800.877.5332

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTAGE UNIT 4
GRADING DETAILS

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
PR-2020-003422	R-15,16,S-16	6	6

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