NAMPA

City of Nampa

Wastewater Treatment Plant Phase I Upgrades: Group A–Liquid Stream Upgrades

Volume 4—Drawings

CH2MHILL®

December 2014

CONTRACT DOCUMENTS

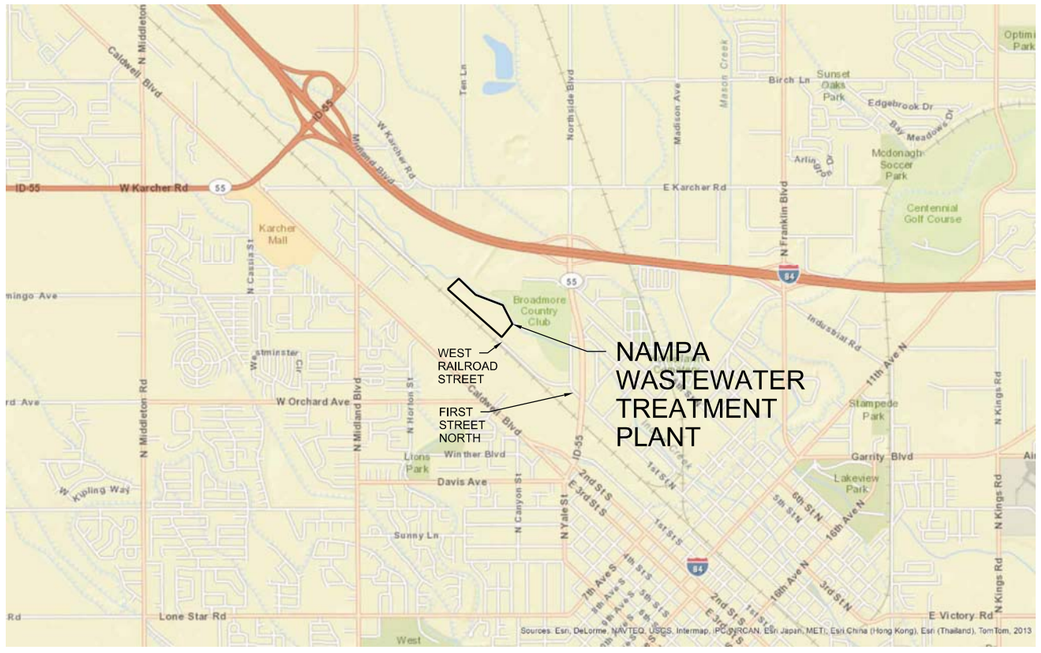
WBG031014203505BOI

NAMPA WASTEWATER TREATMENT PLANT
PHASE 1 UPGRADES
PROJECT GROUP A

FOR THE CITY OF NAMPA
NAMPA, IDAHO

VOLUME 4 - DRAWINGS
BID DOCUMENTS
DECEMBER 2014

VICINITY MAP
NTS



LOCATION MAP
NTS

PROFESSIONAL ENGINEER
LICENSED
15645
STATE OF IDAHO
GREGG VAIL THOMPSON
16 Dec 2014

NO.	DATE	REVISION	BY	APVD
DSGN	G THOMPSON	DR M RARDIN	CHK L FETTKETHER	APVD G THOMPSON

CH2MHILL®

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

GENERAL
COVER SHEET, VICINITY AND LOCATION MAPS

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-001
SHEET	1 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-001.dgn PLOT DATE: 2014\12\11 PLOT TIME: 7:40:03 PM

INDEX TO DRAWINGS

GENERAL

SHEET NO.	DRAWING NO.	DESCRIPTION
		GENERAL
1	010-G-001	COVER SHEET
2	010-G-002	INDEX TO DRAWINGS
3	010-G-004	ABBREVIATIONS AND GENERAL LEGEND
4	010-G-005	CIVIL GENERAL NOTES AND LEGEND
5	010-G-006	OVERALL EXISTING CONDITIONS SITE PLAN
6	010-G-007	OVERALL SITE LAYOUT PLAN, FACILITY KEY, AND SHEET INDEX KEY MAP
7	010-G-008	INSTRUMENTATION AND CONTROL LEGEND - 1
8	010-G-009	INSTRUMENTATION AND CONTROL LEGEND - 2
9	010-G-013	STRUCTURAL NOTES - 1
10	010-G-014	STRUCTURAL NOTES - 2
11	010-G-015	STRUCTURAL ABBREVIATIONS
12	010-G-016	PROCESS MECHANICAL LEGEND
13	010-G-017	ELECTRICAL LEGEND - 1
14	010-G-018	ELECTRICAL LEGEND - 2
15	010-G-019	MAXIMUM MONTHLY MASS BALANCE - 1
16	010-G-020	MAXIMUM MONTHLY MASS BALANCE - 2
17	010-G-021	DESIGN SUMMARY DATA
18	010-G-022	LIQUIDS PROCESS FLOW DIAGRAM - 1
19	010-G-023	LIQUIDS PROCESS FLOW DIAGRAM - 2
20	010-G-024	HYDRAULIC PROFILE
21	010-G-025	PIPING SCHEDULE - 1
22	010-G-026	PIPING SCHEDULE - 2
23	010-G-028	AREA CLASSIFICATION AND MATERIAL SELECTION TABLE

CIVIL/ YARD ELECTRICAL

SHEET NO.	DRAWING NO.	DESCRIPTION
		CIVIL
24	050-D-100	OVERALL SITE DEMOLITION PLAN
25	050-D-103	DEMOLITION PLAN - AREA 3
26	050-D-108	DEMOLITION PLAN - AREA 8
27	050-D-109	DEMOLITION PLAN - AREA 9
28	050-D-110	DEMOLITION PLAN - AREA 10
29	050-D-113	DEMOLITION PLAN - AREA 13
30	050-D-114	DEMOLITION PLAN - AREA 14
31	050-D-301	DEMOLITION SECTIONS
32	050-D-302	DEMOLITION SECTIONS
33	050-D-401	ENLARGED DEMOLITION PLAN
34	050-D-402	ENLARGED DEMOLITION PLAN
35	050-C-100	OVERALL SITE LAYOUT AND GRADING PLAN
36	050-C-103	SITE LAYOUT AND GRADING PLAN - AREA 3
37	050-C-108	SITE LAYOUT AND GRADING PLAN - AREA 8
38	050-C-109	SITE LAYOUT AND GRADING PLAN - AREA 9
39	050-C-110	SITE LAYOUT AND GRADING PLAN - AREA 10
40	050-C-113	SITE LAYOUT AND GRADING PLAN - AREA 13
41	050-C-114	SITE LAYOUT AND GRADING PLAN - AREA 14
42	050-CY-100	OVERALL YARD PIPING PLAN
43	050-CY-108	YARD PIPING PLAN - AREA 8
44	050-CY-109	YARD PIPING PLAN - AREA 9
45	050-CY-110	YARD PIPING PLAN - AREA 10
46	050-CY-113	YARD PIPING PLAN - AREA 13
47	050-CY-114	YARD PIPING PLAN - AREA 14
48	050-CY-301	VAULT PLANS AND SECTIONS
49	050-CY-302	UNDERDRAIN PUMP STATION PLAN, SECTIONS, AND DETAILS
50	050-CY-303	COLLECTION BOX 3 PLANS, SECTIONS, AND DETAILS
51	050-CY-401	ENLARGED YARD PIPING PLAN
52	050-CY-402	ENLARGED YARD PIPING SECTIONS
		YARD ELECTRICAL
53	050-E-103	YARD ELECTRICAL PLAN - AREA 3
54	050-E-108	YARD ELECTRICAL PLAN - AREA 8
55	050-E-109	YARD ELECTRICAL PLAN - AREA 9
56	050-E-110	YARD ELECTRICAL PLAN - AREA 10
57	050-E-113	YARD ELECTRICAL PLAN - AREA 13
58	050-E-114	YARD ELECTRICAL PLAN - AREA 14
59	050-E-301	YARD ELECTRICAL VAULT PLANS
60	050-E-302	ENLARGED YARD ELECTRICAL PLAN
61	050-E-510	YARD ELECTRICAL BLOCK DIAGRAMS
62	050-E-601	YARD ELECTRICAL DUCTBANK SCHEDULE - 1
63	050-E-602	YARD ELECTRICAL DUCTBANK SCHEDULE - 2
64	050-E-603	YARD ELECTRICAL DUCTBANK SCHEDULE - 3
65	050-E-604	YARD ELECTRICAL DUCTBANK SCHEDULE - 4
66	050-E-610	YARD ELECTRICAL HANDHOLE SCHEDULE AND LUMINAIRE SCHEDULE

INSTRUMENTATION AND CONTROL

SHEET NO.	DRAWING NO.	DESCRIPTION
		I&C
67	080-I-501	P&ID - PRIMARY EFFLUENT PUMP STATION
68	080-I-502	P&ID - AERATION BASIN 1 INFLUENT ZONES
69	080-I-503	P&ID - AERATION BASIN 1 AEROBIC ZONES
70	080-I-504	P&ID - AERATION BASIN 2 INFLUENT ZONES
71	080-I-505	P&ID - AERATION BASIN 2 AEROBIC ZONES
72	080-I-506	P&ID - AERATION BASIN 3 INFLUENT ZONES
73	080-I-507	P&ID - AERATION BASIN 3 AEROBIC ZONES
74	080-I-510	P&ID - MISCELLANEOUS SYSTEMS
75	080-I-511	P&ID - SECONDARY CLARIFIER 2 EFFLUENT
76	080-I-512	P&ID - BLOWER BUILDING BLOWER SYSTEM
77	080-I-520	NETWORK BLOCK DIAGRAM
78	080-I-521	DETAILS

TRICKLING FILTER NO. 2

SHEET NO.	DRAWING NO.	DESCRIPTION
		PROCESS MECHANICAL
79	321-M-111	TRICKLING FILTER NO. 2 MECHANISM REPLACEMENT
80	321-M-REF-1	TRICKLING FILTER NO. 2 MECHANISM REPLACEMENT VENDOR DRAWING

PRIMARY EFFLUENT PUMP STATION

SHEET NO.	DRAWING NO.	DESCRIPTION
		GENERAL
81	371-G-001	PRIMARY EFFLUENT PUMP STATION RENDERED MODEL
		STRUCTURAL
82	371-S-101	PRIMARY EFFLUENT PUMP STATION FOUNDATION PLAN
83	371-S-111	PRIMARY EFFLUENT PUMP STATION PLAN
84	371-S-301	PRIMARY EFFLUENT PUMP STATION SECTIONS
		PROCESS MECHANICAL
85	371-M-111	PRIMARY EFFLUENT PUMP STATION PLAN
86	371-M-301	PRIMARY EFFLUENT PUMP STATION SECTIONS
		ELECTRICAL
87	371-E-111	PRIMARY EFFLUENT PUMP STATION PLAN
88	371-E-501	PRIMARY EFFLUENT PUMP STATION CONTROL DIAGRAMS
89	371-E-510	PRIMARY EFFLUENT PUMP STATION BLOCK DIAGRAMS

PEPS ELECTRICAL BUILDING

SHEET NO.	DRAWING NO.	DESCRIPTION
		GENERAL
90	381-G-001	PEPS ELECTRICAL BUILDING RENDERED MODEL
		ARCHITECTURAL/STRUCTURAL
91	381-AS-001	PEPS ELECTRICAL BUILDING LIFE SAFETY PLAN
92	381-AS-101	PEPS ELECTRICAL BUILDING FOUNDATION/ FLOOR PLAN
93	381-AS-111	PEPS ELECTRICAL BUILDING ROOF AND FRAMING PLAN
94	381-AS-201	PEPS ELECTRICAL BUILDING EXTERIOR ELEVATIONS
95	381-AS-301	PEPS ELECTRICAL BUILDING SECTIONS
		BUILDING MECHANICAL
96	381-BM-101	PEPS ELECTRICAL BUILDING HVAC PLAN
97	381-BM-501	PEPS ELECTRICAL BUILDING DIAGRAMS AND SCHEDULES
		ELECTRICAL
98	381-E-001	PEPS ELECTRICAL BUILDING MCC-11 ONE-LINE DIAGRAM
99	381-E-002	PEPS ELECTRICAL BUILDING MCC-11S ONE-LINE DIAGRAM
100	381-E-111	PEPS ELECTRICAL BUILDING PLAN
101	381-E-510	PEPS ELECTRICAL BUILDING BLOCK DIAGRAMS
102	381-E-601	PEPS ELECTRICAL PANEL SCHEDULES

AERATION BASIN 1

SHEET NO.	DRAWING NO.	DESCRIPTION
		GENERAL
103	421-G-001	AERATION BASINS 1, 2, AND 3 RENDERED MODEL
		DEMOLITION
104	421-D-111	AERATION BASIN 1 NORTH DEMOLITION PLAN
105	421-D-112	AERATION BASIN 1 SOUTH DEMOLITION PLAN
106	421-D-301	AERATION BASIN 1 DEMOLITION SECTIONS
		STRUCTURAL
107	421-S-100	AERATION BASINS 1, 2, AND 3 OVERALL PLANS
108	421-S-101	AERATION BASIN 1 NORTH LOWER LEVEL PLAN
109	421-S-111	AERATION BASIN 1 NORTH UPPER LEVEL PLAN
110	421-S-301	AERATION BASIN 1 AND 2 SECTIONS AND DETAILS
		PROCESS MECHANICAL
111	421-M-111	AERATION BASIN 1 NORTH PLAN
112	421-M-112	AERATION BASIN 1 SOUTH PLAN
113	421-M-301	AERATION BASIN 1 SECTIONS
114	421-M-302	AERATION BASIN 1 SECTIONS
115	421-M-303	AERATION BASIN 1 SECTIONS
116	421-M-401	AERATION BASIN 1 DETAILS
		ELECTRICAL
117	421-E-111	AERATION BASIN 1 NORTH PLAN
118	421-E-112	AERATION BASIN 1 SOUTH PLAN
119	421-E-501	AERATION BASIN 1 CONTROL DIAGRAMS
120	421-E-510	AERATION BASIN 1 BLOCK DIAGRAMS

AERATION BASIN 2

SHEET NO.	DRAWING NO.	DESCRIPTION
		DEMOLITION
121	422-D-111	AERATION BASIN 2 NORTH DEMOLITION PLAN
122	422-D-112	AERATION BASIN 2 SOUTH DEMOLITION PLAN
123	422-D-301	AERATION BASIN 2 DEMOLITION SECTIONS
		STRUCTURAL
124	422-S-101	AERATION BASIN 2 NORTH LOWER LEVEL PLAN
125	422-S-111	AERATION BASIN 2 NORTH UPPER LEVEL PLAN
		PROCESS MECHANICAL
126	422-M-111	AERATION BASIN 2 NORTH PLAN
127	422-M-112	AERATION BASIN 2 SOUTH PLAN
128	422-M-301	AERATION BASIN 2 SECTIONS
129	422-M-302	AERATION BASIN 2 SECTIONS
130	422-M-303	AERATION BASIN 2 SECTIONS
		ELECTRICAL
131	422-E-111	AERATION BASIN 2 NORTH PLAN
132	422-E-112	AERATION BASIN 2 SOUTH PLAN
133	422-E-501	AERATION BASIN 2 CONTROL DIAGRAMS
134	422-E-510	AERATION BASIN 2 BLOCK DIAGRAMS

AERATION BASIN 3

SHEET NO.	DRAWING NO.	DESCRIPTION
		STRUCTURAL
135	423-S-101	AERATION BASIN 3 NORTH FOUNDATION PLAN
136	423-S-102	AERATION BASIN 3 SOUTH FOUNDATION PLAN
137	423-S-111	AERATION BASIN 3 NORTH UPPER LEVEL PLAN
138	423-S-112	AERATION BASIN 3 SOUTH UPPER LEVEL PLAN
139	423-S-201	AERATION BASIN 3 ENLARGED PLANS
140	423-S-301	AERATION BASIN 3 OVERALL SECTIONS
141	423-S-302	AERATION BASIN 3 SECTIONS
142	423-S-303	AERATION BASIN 3 SECTIONS
143	423-S-304	AERATION BASIN 3 SECTIONS
144	423-S-401	AERATION BASIN 3 DETAILS
		PROCESS MECHANICAL
145	423-M-101	AERATION BASIN 3 NORTH UNDERDRAIN SYSTEM PLAN
146	423-M-102	AERATION BASIN 3 SOUTH UNDERDRAIN SYSTEM PLAN
147	423-M-111	AERATION BASIN 3 NORTH PLAN
148	423-M-112	AERATION BASIN 3 SOUTH PLAN
149	423-M-301	AERATION BASIN 3 SECTIONS
150	423-M-302	AERATION BASIN 3 SECTIONS
151	423-M-303	AERATION BASIN 3 SECTIONS
		ELECTRICAL
152	423-E-111	AERATION BASIN 3 NORTH PLAN
153	423-E-112	AERATION BASIN 3 SOUTH PLAN
154	423-E-501	AERATION BASIN 3 CONTROL DIAGRAMS
155	423-E-502	AERATION BASIN 3 CONTROL DIAGRAMS
156	423-E-510	AERATION BASIN 3 BLOCK DIAGRAMS

BLOWER BUILDING

SHEET NO.	DRAWING NO.	DESCRIPTION
		ELECTRICAL
157	435-E-111	BLOWER ROOM PLAN

PROFESSIONAL ENGINEER REGISTERED Lawrence Fettkether 3755 STATE OF IDAHO LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	REVISION	DSGN	DR	CHK	APVD	BY	APVD
			L FETTKETHER	M RARDIN	G THOMPSON	G THOMPSON		G THOMPSON

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
INDEX TO DRAWINGS

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-002
SHEET	2 of 157

BID DOCUMENTS

ABBREVIATIONS

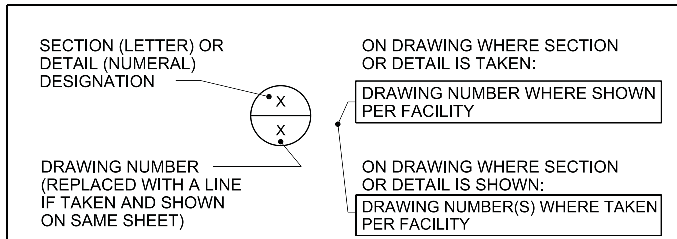
@	AT
AADF	ANNUAL AVERAGE DAILY FLOW
A/B	AERATION BASIN
AB	ANCHOR BOLT
ABDN	ABANDONED
AC	ASPHALT CONCRETE
ACBD	ACOUSTICAL BOARD
ACST	ACOUSTICAL TILE
ACT	ACOUSTICAL
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJACENT
ADWF	AVERAGE DAY WEATHER FLOW
AFF	ABOVE FINISH FLOOR
AHR	ANCHOR
AL	ALUMINUM
ALTN	ALTERNATE
AM	AVERAGE MONTH
ANOD	ANODIZED
APPROX	APPROXIMATE
APVD	APPROVED
ARCH	ARCHITECTURAL
ASSY	ASSEMBLY
AVG	AVERAGE
BC	BOTTOM OF CURB
BD	BOARD
BETW	BETWEEN
BF	BLIND FLANGE, BOTTOM FACE
BLDG	BUILDING
BM	BEAM
BNSF RR	BURLINGTON NORTHERN/SANTA FE RAILROAD
BOD	BOTTOM OF DUCT
BOD/BOD $_5$	BIOCHEMICAL OXYGEN DEMAND (5 DAY TEST)
BOL	BOTTOM OF LINE
BOT	BOTTOM
BRG	BEARING
CAB.	CABINET
CC	CIRCLE CENTER
CCP	CONCRETE CYLINDER PIPE
C/C	CHLORINE CONTACT
CEM PLAS	CEMENT PLASTER
CHEM	CHEMICAL
CHKD	CHECKERED
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT
℄ OR CL	CENTER LINE
CL_2	CHLORINE
CLG	CEILING
CLP	CLAY PIPE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONARY UNITS
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COR	CORNER
CP	CONCRETE PIPE
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
C TO C	CENTER TO CENTER
CTR	CENTER
CTRD	CENTERED
CU FT	CUBIC FEET
△	CENTRAL ANGLE
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DECHLOR	DECHLORINATION
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DIR	DIRECTION
DISCH	DISCHARGE
DS	DOWNSPOUT
DN	DOWN
DRWR	DRAWER
DWG	DRAWING
DWL	DOWEL
DWMMF	DRY WEATHER MAXIMUM MONTH FLOW

E	EAST
E	EXTERNAL
EA	EACH
ELB	ELBOW
ECC	ECCENTRIC
EF	EACH FACE
EFL	EFFLUENT
EL	ELEVATION
ELEC	ELECTRICAL
EP	EDGE OF PAVEMENT
EQ, EQL	EQUAL
EQL SP	EQUALLY SPACED
EQUIP, EQPT	EQUIPMENT
EW	EACH WAY
EXH	EXHAUST
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
EXST	EXISTING
FA	FIRST AID KIT
FAB	FABRICATION
F FL EL	FINISHED FLOOR ELEVATION
FACIL	FACILITY
FCTY,FACT.	FACTORY
FEXT	FIRE EXTINGUISHER
FD	FLOOR DRAIN
FDN	FOUNDATION
FLL	FLOW LINE ELEVATION
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FNSH	FINISH
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPS	FERMENTED PRIMARY SLUDGE
FT	FOOT OR FEET
FTG	FOOTING
FNPR	FEMALE NATIONAL PIPE THREAD
GA	GAUGE
GB	GRAB BAR
GAL	GALLON
GALV	GALVANIZED
GALVS	GALVANIZED STEEL
GPD	GALLONS PER DAY
GRD	GROUND
GRTG	GRATING
GVL	GRAVEL
GWB	GYPSUM WALLBOARD
GYP PLAS	GYPSUM PLASTER
H.A.S	HEADED ANCHOR STUD
HD	HUB DRAIN
HDNR	HARDNER
HDR	HEADER
HGT	HEIGHT
HORIZ	HORIZONTAL
HM	HOLLOW METAL
HPT	HIGH POINT
HR	HANDRAIL
HR	HOUR
HS	HIGH STRENGTH
I&C	INSTRUMENTATION AND CONTROL
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
I.F.	INSIDE FACE
IN	INCHES
INFL	INFLUENT
INSTL	INSTALL
INSUL	INSULATION
INT	INTERIOR
INVT	INVERT
IR	IRON ROD
ITG	INSULATED TEMPERED GLASS
JT	JOINT
L	LENGTH OF CURVE
LB	POUNDS
LB/D	POUNDS PER DAY
LG	LONG
LIFE B	LIFE BUOY
LLV	LONG LEG VERTICAL
LNTL	LINTEL
LONG	LONGITUDINAL
LPT	LOW POINT
LT	LIGHT

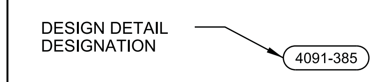
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MG/L	MILLIGRAMS PER LITRE
MH	MANHOLE
MIN	MINIMIM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
MLVSS	MIXED LIQUOR VOLATILE SUSPENDED SOLIDS
MM	MAXIMUM MONTH
MO	MONTH
MO	MASONARY OPENING
MON	MONUMENT
MTG	MOUNTING
MTL	METAL
MTRG	METERING
N	NORTH
NA	NOT APPLICABLE
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NORM	NORMAL
NTS	NOT TO SCALE
NW	NORTHWEST
NPT	NATIONAL PIPE THREAD
OC	ON CENTER
OD	OUTSIDE DIAMETER, OVERFLOW DRAIN
O.F.	OUTSIDE FACE
O/H	OVERHEAD
O TO O	OUT TO OUT
OPNG	OPENING
OPP	OPPOSITE
PC	POINT OF CURVATURE
P/C	PRIMARY CLARIFIERS
PD	PEAK DAY
PE	PLAIN END
PHF	PEAK HOUR FLOW
PI	POINT OF INTERSECTION
PI	PRIMARY INFLUENT
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PJF	PREMOLDED JOINT FILLER
PL	PLATE
PLAM	PLASTIC LAMINATE
PLE	PLANT EFFLUENT
PLYWD	PLYWOOD
POC	POINT ON CURVE
POT	POINT ON TANGENT
PR	PAIR
PRCST	PRECAST
PS	PUMP STATION
PS	PRIMARY SLUDGE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PTD	PAPER TOWEL DISPENSER
PTD/R	PAPER TOWEL DISPENSER/RECPTACLE
PTRD	PRESSURE TREATED
PVC	POINT OF VERTICAL CURVATURE
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
QDRNT	QUADRANT
R	R-VALUE (INSULATION)
R OR RAD	RADIUS
R	RISER
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RDCR OR RED	REDUCER
REHAB	REHABILITATE
REINF	REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RM	ROOM
RO	ROUGH OPENING
RR	REDUCER
R/R	RAILROAD
RS	RAW SEWAGE
RST	REINFORCING STEEL OR ROTARY SCREEN THICKNER

S	SOUTH
SAT	SUSPENDED ACOUSTICAL TILE
S/C	SECONDARY CLARIFIERS
SCBA	SELF CONTAINED BREATHING APPARATUS
SCHED OR SCH	SCHEDULE
SD	SOAP DISPENSER
SE	SOUTHEAST
SE	SECONDARY EFFLUENT
SECT	SECTION
SF	SQUARE FOOT(FEET)
SG	SAFETY GLASS
SH	SHEET
SHTG	SHEETING
SI	SECONDARY INFLUENT
SIM	SIMILAR
SLV	SHORT LEG VERTICAL
S.O.	SHUTOFF
SPECD	SPECIFIED
SPECS	SPECIFICATIONS
SPCS	SPACES
SPG	SPACING
SQ	SQUARE
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STIF	STIFFENER
STOR	STORAGE
STR	STRAIGHT
STRUCT	STRUCTURAL
STL	STEEL
SW	SOUTHWEST
SYMM	SYMMETRICAL
T	TANGENT LENGTH
T	TINTED
T	TREAD
T&B	TOP AND BOTTOM
TAS	TEXTURED ACRYLIC FINISH SYSTEM
TAFS	THREADED ANCHOR STUD
TC	TOP OF CURB
TEMP	TEMPERED
TF	TOP FACE
TG	TEMPERD GLASS
TFML	TRICKLING FILTER MIXED LIQUOR
TFPS	TRICKLING FILTER PUMP STATION
THK	THICK
THRD	THREADED
T.O.	TOP OF

TOC	TOP OF CONCRETE
TOG	TOP OF GRATE
TOS	TOP OF STEEL
TPD	TONS PER DAY
TPI	TURNOUT POINT OF INTERSECTION
TRANSV	TRANSVERSE
TRD	TREAD
TSS	TOTAL SUSPENDED SOLIDS
TST	TOP OF STEEL
TTD	TOILET TISSUE DISPENSER
TW	TOP OF WALL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UNO	UNLESS NOTED OTHERWISE
UT	UTILIDOR
UV	ULTRA VIOLET
V	VENT
VAT	VINYL ASBESTOS TILE
VERT	VERTICAL
VCP	VITRIFIED CLAY PIPE
VFA	VOLITLE FATTY ACID
VTR	VENT THRU ROOF
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
WAS	WASTE ACTIVATED SLUDGE
WD	WOOD
WG	WIRE GLASS
WK	WEEK
WP	WORKING POINT
WR GWB	WATER RESISTANT GYPSUM WALLBOARD
WR	WASTE RECEPTACLE
WS	WATER STOP, WATERSURFACE
WS	WELDED STEEL
WWM	WELDED WIRE MESH
WWMMF	WET WEATHER MAXIMUM MONTH FLOW
WWPDF	WET WEATHER PEAK DAY FLOW
XFMR	TRANSFORMER
YD	YARD
YR	YEAR



DETAIL AND SECTION DESIGNATION



SHOWN ON DESIGN DETAIL DRAWING(S), SEE SPECIFICATION SECTION

NOTE:
ALL DESIGN DETAILS ARE TYPICAL AND MUST BE USED EVEN IF DESIGN DETAIL DESIGNATION IS NOT SHOWN

DESIGN DETAIL DESIGNATION

MATCHLINE

ADDITIVE BID ALTERNATE

PROFESSIONAL ENGINEER REGISTERED 3755 STATE OF IDAHO LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	REVISION	BY	APVD

DSGN L FETTKETHER | DR M RARDIN | CHK G THOMPSON | APVD G THOMPSON

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
ABBREVIATIONS AND GENERAL LEGEND

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-004
SHEET	3 of 157

BID DOCUMENTS

GENERAL SITE NOTES:

1. SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE BASE MAPS PROVIDED BY JUB ENGINEERS, INC. AUGUST 2014. THE HORIZONTAL DATUM FOR THIS PROJECT IS BASED ON IDAHO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983 (NAD 83). THE VERTICAL DATUM FOR THE PROJECT IS NAVD 88, UNIT OF MEASURE FOR THIS PROJECT IS U.S. SURVEY FEET. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY, AND OBTAIN ENGINEER'S APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
2. HISTORICALLY VERTICAL DATUM USED FOR THIS SITE IS NGVD29, ELEVATIONS REPORTED ON PROJECTS USING THE OLD DATUM (NGVD29) WILL NOT BE CONSISTENT.
3. EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES, ARE SHOWN SCREENED AND/OR LIGHT-LINED (SHADED). NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED (BOLD OR DARK). NEW PIPING THAT IS LOCATED BELOW GROUND IS SHOWN AS HEAVY-LINED (BOLD OR DARK) AND ABOVE GROUND IS SHOWN AS HEAVY LINED (BOLD OR DARK) AND DASHED. FUTURE WORK IS SHOWN AS LIGHT-LINED (SHADED) AND DASHED.
4. MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE. BENCHMARKS SHALL BE PLACED ON A STABLE FOUNDATION SUCH AS CONCRETE CURBS, WALKS, WALLS OR OTHER STRUCTURE ACCEPTABLE TO ENGINEER. BENCHMARK ELEVATIONS SHALL ADHERE TO ACCEPTED MAPPING ACCURACY STANDARDS AND SHALL BE ESTABLISHED UNDER THE DIRECTION OF A SURVEYOR LICENSED IN THE STATE OF IDAHO. HORIZONTAL AND VERTICAL BENCHMARK INFORMATION SHALL BE CALLED OUT ON THE AS-BUILT DRAWINGS.
5. ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
6. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
7. UNLESS SHOWN ON SURFACE RESTORATION PLANS, ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE SHALL BE RESTORED TO SURFACE TYPE THAT EXISTED PRIOR TO CONSTRUCTION.
8. FOR LOCATION OF CONTROL POINTS ON STRUCTURES, SEE STRUCTURAL DRAWINGS.
9. PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY AT ALL TIMES.
10. CONTRACTOR TO USE CURRENT EDITION OF MUTCD STANDARDS FOR CONSTRUCTION SIGNAGE.
11. CONTRACTOR TO SUBMIT CONSTRUCTION TRAFFIC CONTROL PLAN TO OWNER FOR APPROVAL TWO WEEKS PRIOR TO CONSTRUCTION.
12. STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ON-SITE STORAGE OF MATERIALS. LOCATION OF STAGING AREA AND ACCESS TO SITE MUST BE APPROVED BY OWNER.
13. SPECIFICATIONS FOR THIS PROJECT ARE THE 2008 IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC), CITY OF NAMPA SUPPLEMENTS TO THE 2008 ISPWC, AND CH2M HILL SPECIFICATIONS.
14. DETAILS ON THE PLAN SHEETS REFERENCE THE ISPWC STANDARD DETAIL NUMBER (i.e. SD-301), THE PROJECT'S STANDARD DETAILS (i.e. (3215-261)), AND THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY'S (IDEQ) CATALOG OF STORMWATER BEST MANAGEMENT PRACTICES FOR CITIES AND COUNTIES (i.e. BMP-35).

GENERAL YARD PIPING AND UTILITIES NOTES:

1. EXISTING UNDERGROUND UTILITY INFORMATION (HORIZONTAL AND VERTICAL) WAS OBTAINED FROM REFERENCE PROJECT DRAWINGS, PLANT BASE MAPPING AND FROM FIELD SURVEY. CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION. PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION UNLESS IDENTIFIED FOR DEMOLITION.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES IN THE WORK AREA, MARKED OR UNMARKED, BEFORE COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CARE IN ALL EXCAVATIONS TO AVOID CONFLICTS WITH OTHER EXISTING UTILITIES, MARKED OR UNMARKED. THE CONTRACTOR AGREES TO PROTECT ALL UTILITIES AND STRUCTURES NOT SCHEDULED FOR DEMOLITION.
3. FOR PIPING FLOW STREAM IDENTIFICATION, SEE PIPING SCHEDULE ON SHEETS 010-G-025 AND 010-G-026.
4. UNLESS OTHERWISE SHOWN ALL PIPING SHALL HAVE A MINIMUM OF 3-FEET OF COVER PER CITY OF NAMPA STANDARDS.
5. ALL PIPES SHALL HAVE A CONSTANT SLOPE BETWEEN INVERT ELEVATIONS UNLESS A FITTING IS SHOWN.
6. FOR TRENCHING AND BACKFILL SEE ISPWC DIVISION 300, TRENCHING.
7. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN POTABLE AND NONPOTABLE LINES SHALL MEET THE REQUIREMENTS OF IDAPA 58.01.16. WHERE MINIMUM SEPARATION DISTANCE CANNOT BE MET, CONFER WITH ONSITE ENGINEER.
8. CONTRACTOR SHALL MAINTAIN AN UP TO DATE SET OF UTILITY DRAWINGS AND SURVEY DATA (PER 01 31 13) DOCUMENTING ALL CHANGES FROM THE DRAWINGS THAT OCCUR IN THE FIELD. ALL INCONSISTENCIES WILL BE SURVEYED AND REPORTED BASED ON HORIZONTAL DATUM NAVD 83 AND VERTICAL DATUM NAVD 88. SET SHALL BE SUBMITTED TO THE OWNER PRIOR TO DEMOBILIZATION.

EROSION AND SEDIMENT CONTROL NOTES:

1. THESE PLANS SHOW THE MINIMUM EROSION AND SEDIMENT CONTROL REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING, IMPLEMENTING AND MAINTAINING THE APPROVED SWPPP AND EROSION CONTROL DEVICES DURING CONSTRUCTION.
2. CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
3. CONTRACTOR RESPONSIBLE FOR SUBMITTING ELECTRONIC NOTICE OF INTENT (ENOI) TO ENVIRONMENTAL PROTECTION AGENCY (EPA).

DEMOLITION NOTES:

1. ALL BURIED PIPE SCHEDULED FOR DEMOLITION SHALL BE REMOVED FROM THE GROUND IN ITS ENTIRETY. ABANDONMENT IN PLACE MAY TAKE PLACE ONLY IF REMOVAL IS NOT POSSIBLE OR WHERE SPECIFICALLY CALLED FOR. ABANDONED PIPES AND ABANDONMENT PROCESS MUST BE APPROVED BY ENGINEER AND OWNER PRIOR TO ABANDONMENT.
2. ALL DEMOLITION WORK SHALL CONFORM TO THE APPROVED DEMOLITION PLAN AND THE SPECIFICATIONS. TEMPORARY SERVICES MUST BE INSTALLED PER THE APPROVED SEQUENCING PLAN.
3. ELECTRICAL DEMOLITION: WHERE INDICATED, DE-ENERGIZE AND DISCONNECT NON-ELECTRICAL EQUIPMENT FOR REMOVAL BY OTHERS. WHERE INDICATED, DE-ENERGIZE, DISCONNECT, AND REMOVE ELECTRICAL EQUIPMENT. REMOVE AFFECTED CIRCUITS AND RACEWAYS BACK TO SERVING PANELBOARD OR CONTROL PANEL. WHERE AFFECTED CIRCUITS ARE CONSOLIDATED WITH OTHERS, REMOVE RACEWAYS BACK TO FIRST SHARED CONDULET OR BOX. WHERE UNDERGROUND OR EMBEDDED RACEWAYS ARE TO BE ABANDONED, REMOVE RACEWAY TO 1-INCH BELOW SURFACE OF STRUCTURE OR 12-INCHES BELOW GRADE AND RESTORE EXISTING SURFACE. LOCATE TERMINATION OF RACEWAY ON UTILITY AS-BUILT DRAWING.

ABBREVIATIONS

BOS	BOTTOM OF STEP
BM	BENCHMARK
DEMO	DEMOLITION, DEMOLISH
E	EASTING
EOC	EDGE OF CONCRETE
EP	EDGE OF PAVEMENT
EG	EXISTING GRADE
EL, ELEV	ELEVATION
EXST	EXISTING
FL	FLOW LINE
GALV	GALVANIZED
HP	HIGH POINT
IE, INV EL	INVERT ELEVATION
ISPWC	IDAHO STANDARD FOR PUBLIC WORKS CONSTRUCTION
MH	MANHOLE
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS CURRENT EDITION
N	NORTHING
NIC	NOT IN CONTRACT
PH	POTHOLE
S	SLOPE
SD	STORM DRAIN
SS	SANITARY SEWER
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
TOC	TOP OF CONCRETE
TOS	TOP OF STEP
UTIL	UTILITY
WWTP	WASTEWATER TREATMENT PLANT

CIVIL LEGEND

EXISTING / THIS CONTRACT

- SPOT ELEVATION (× 157.7 / ⊗ 158.5)
- CONTOUR LINE (155 / 155)
- EMBANKMENT AND SLOPE (3:1)
- IRRIGATION DRAIN, CANAL OR DITCH
- MANHOLE
- ELECTRICAL MANHOLE OR HANDHOLE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- SURVEY CONTROL POINT
- TREE
- PROPERTY LINE (P L)
- CENTERLINE (BUILDING, ROAD, ETC)
- STAGING OR WORK AREA LIMITS
- LIMITS OF EXCAVATION
- STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES (N 1000.00 / E 1000.00)
- BENCHMARK (BM #X)
- INLET PROTECTION
- SILT FENCE
- STRAW WATTLE
- FACILITY DEMOLITION
- ASPHALT/CONCRETE DEMOLITION
- SOD/LAWN/GRAVEL DEMOLITION
- STRUCTURE, BUILDING OR FACILITY (OR)
- ASPHALT CONCRETE PAVEMENT
- LANDSCAPE ROCK SURFACING
- CONCRETE PAVEMENT
- DIRT SURFACING
- GRAVEL SURFACING
- GRASS/SOD SURFACING
- CURB
- SINGLE SWING GATE
- DOUBLE SWING GATE
- CHAINLINK FENCE
- ABANDONED PIPE

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

PROFESSIONAL ENGINEER REGISTERED 13300 12/16/2014 STATE OF IDAHO AMANDA MARIE SMITH

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
	A THOMPSON		A TOLMAN	B ROBERTS		G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
CIVIL GENERAL NOTES AND LEGEND

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-005
SHEET	4 of 157

BID DOCUMENTS

GENERAL SHEET NOTES

A. SEE 010-G-004 FOR OVERALL SITE LAYOUT PLAN, FACILITY KEY, AND SHEET INDEX KEY MAP.

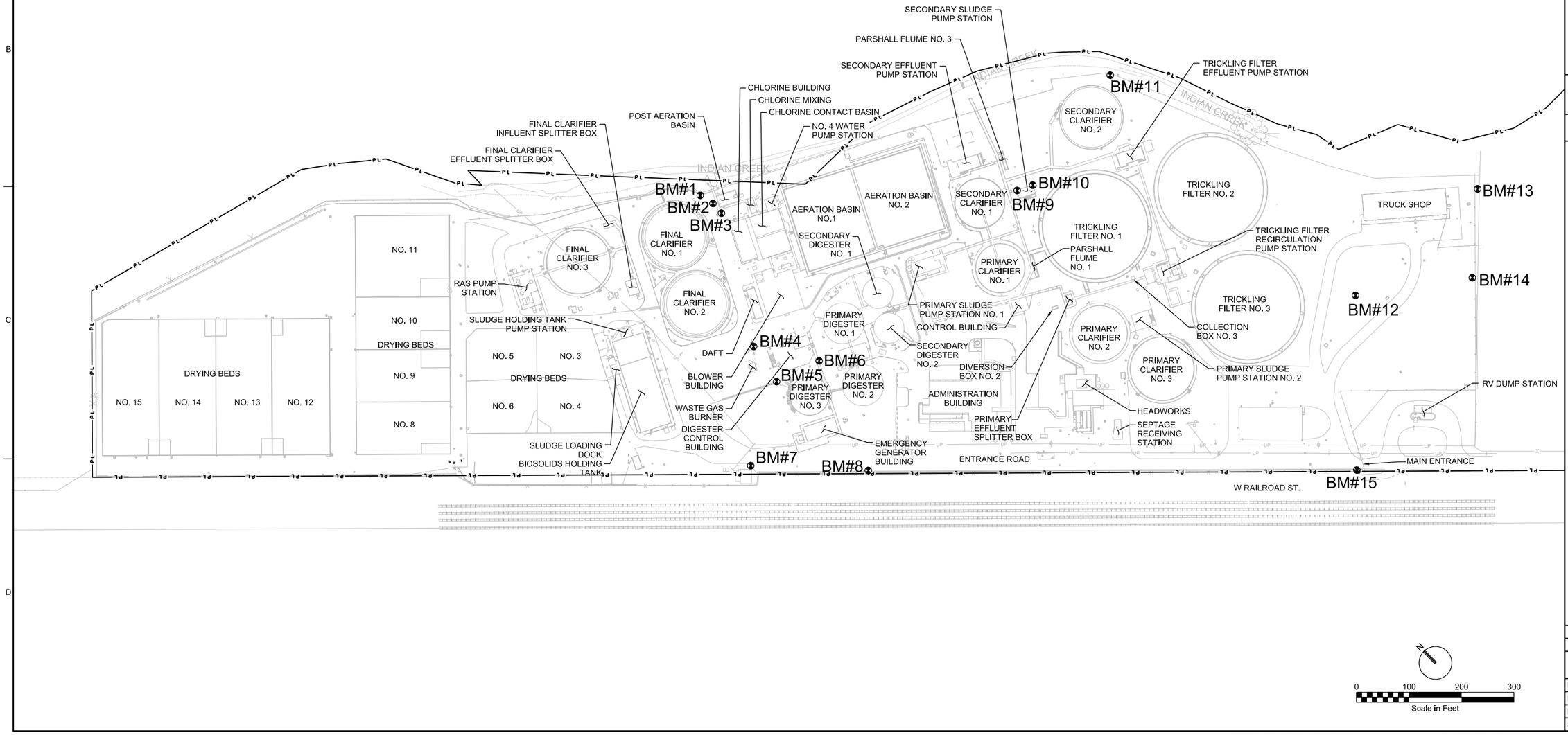
B. SEE 050-D-100 FOR OVERALL SITE DEMOLITION PLAN AND SHEET INDEX KEY MAP.

C. SEE 050-CY-100 FOR OVERALL YARD PIPING PLAN AND SHEET INDEX KEY MAP.

D. BM#9 AND BM#10 WILL BE DEMOLISHED. CONTRACTOR TO REESTABLISH THEM AS APPROVED BY ENGINEER AND OWNER.

CONTROL POINT TABLE

POINT	DESCRIPTION	NORTHING	EASTING	EL
BM#1	5/8 REBAR	704975.77	2404251.92	2456.10
BM#2	PK NAIL	704947.47	2404258.90	2456.24
BM#3	BC	704922.25	2404256.71	2456.60
BM#4	PK NAIL	704697.56	2404124.33	2456.92
BM#5	PK NAIL	704618.88	2404109.18	2457.20
BM#6	PK NAIL	704591.73	2404195.35	2458.49
BM#7	AC	704538.63	2403963.03	2457.69
BM#8	PK NAIL	704375.90	2404117.05	2458.47
BM#9	PK NAIL	704563.48	2404692.38	2457.04
BM#10	CPPLUG JUB	704549.30	2404720.53	2457.10
BM#11	AC	704597.75	2404972.81	2460.88
BM#12	SPIKE	703971.25	2405016.40	2461.16
BM#13	PK NAIL	703955.74	2405324.59	2465.58
BM#14	AC	703841.56	2405200.42	2462.18
BM#15	AC	703730.13	2404787.41	2460.20



NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
		A THOMPSON	A TOLMAN	B ROBERTS			G THOMPSON

REVISION

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL

OVERALL EXISTING CONDITIONS SITE PLAN

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-006
SHEET	5 of 157

BID DOCUMENTS

FACILITY KEY

305	TRICKLING FILTER NO. 2
371	PRIMARY EFFLUENT PUMP STATION (PEPS)
381	PEPS ELECTRICAL BUILDING
421	AERATION BASIN 1
422	AERATION BASIN 2
423	AERATION BASIN 3
431	BLOWER BUILDING

GENERAL SHEET NOTES

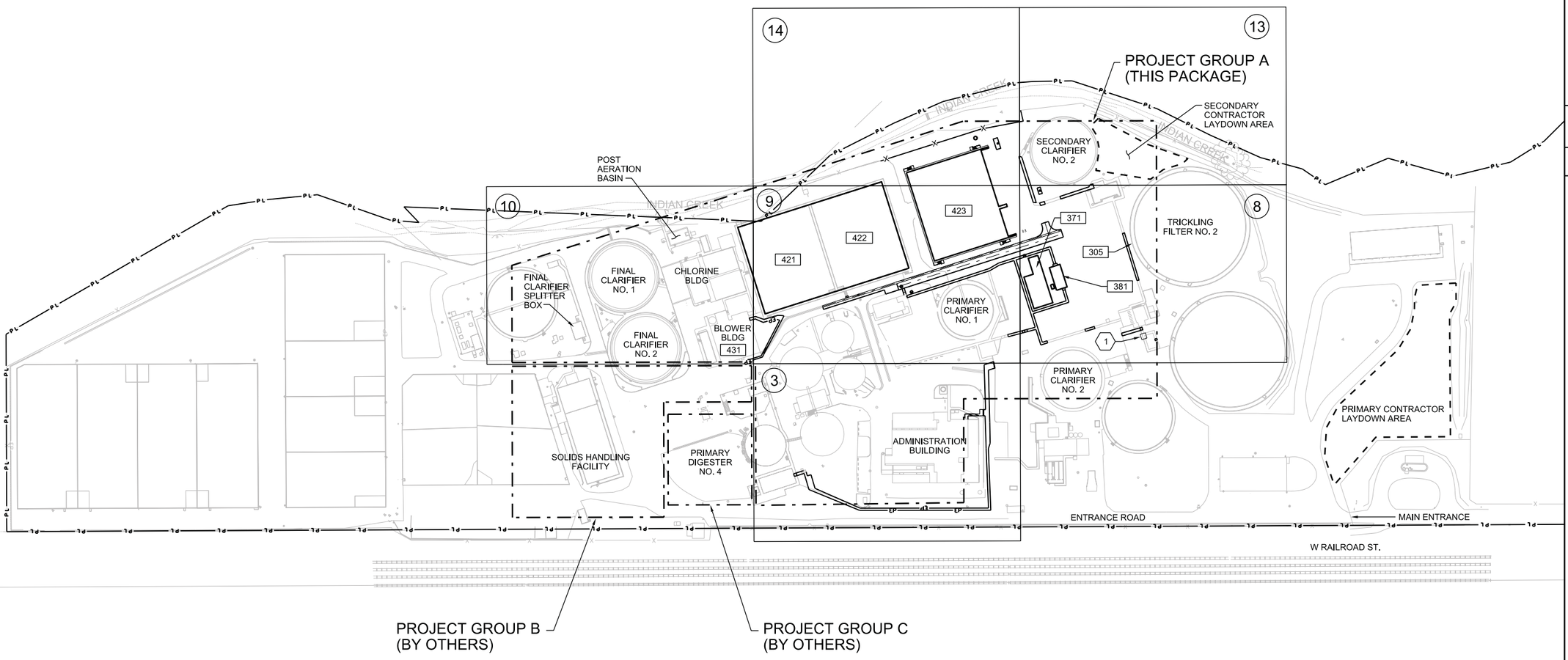
A. SEE 010-G-003 FOR OVERALL EXISTING CONDITIONS SITE PLAN.

B. SEE 050-D-100 FOR OVERALL SITE DEMOLITION PLAN AND SHEET INDEX KEY MAP.

C. SEE 050-CY-100 FOR OVERALL YARD PIPING PLAN AND SHEET INDEX KEY MAP.

SHEET KEYNOTES

1. TRICKLING FILTER ELECTRICAL BUILDING. MCC-2A1 IN TRICKLING FILTER BUILDING IS AN AVAILABLE SOURCE OF 480V, 3PH, TEMPORARY POWER FOR CONTRACTOR CONSTRUCTION TRAILERS.



PROFESSIONAL ENGINEER
REGISTERED
13300
12/16/2014
STATE OF IDAHO
AMANDA MARIE SMITH

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A THOMPSON	A TOLMAN	B ROBERTS	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL

OVERALL SITE LAYOUT PLAN FACILITY KEY, AND SHEET INDEX KEY MAP

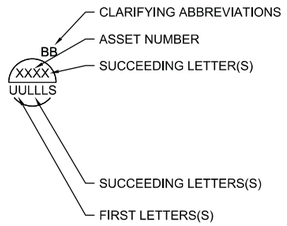
BID DOCUMENTS

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-007
SHEET	6 of 157

INSTRUMENT IDENTIFICATION

EXAMPLE SYMBOLS



DIGITAL SYSTEM INTERFACES

- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- $\triangle_X$ DISCRETE INPUT
- ∇_X DISCRETE OUTPUT

INSTRUMENT IDENTIFICATION LETTERS TABLE

LETTER	FIRST-LETTER		SUCCEEDING-LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	READOUT OR PASSIVE FUNCTION	READOUT OR PASSIVE FUNCTION
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
C	USER'S CHOICE (*)			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT, SENSOR		
	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE (*)		GLASS, GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
O	USER'S CHOICE (*)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTI VARIABLE		MULTI FUNCTION	MULTI FUNCTION	MULTI FUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (*)	X AXIS	UNCLASSIFIED (*)	UNCLASSIFIED (*)	UNCLASSIFIED (*)
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

TABLE BASED ON THE INSTRUMENTATION, SYSTEMS, AND AUTOMATION SOCIETY (ISA) STANDARD.

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.
(*) WHEN USED, DEFINE THE MEANING HERE FOR THE PROJECT.

GENERAL INSTRUMENT OR FUNCTIONAL SYMBOLS

- FIELD MOUNTED
- REAR-OF-PANEL MOUNTED (OPERATOR INACCESSIBLE)
- PANEL MOUNTED (OPERATOR ACCESSIBLE)
- MCC MOUNTED

TRANSDUCERS

A	ANALOG	I	CURRENT
D	DIGITAL	P	PNEUMATIC
E	VOLTAGE	PF	PULSE FREQUENCY
F	FREQUENCY	PD	PULSE DURATION
H	HYDRAULIC	R	RESISTANCE

EXAMPLE

CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)

ACCESSORY DEVICES

A	ALARM
C	CONTROLLER
I	INDICATOR
R	RECORDER
S	SWITCH
T	TRANSMITTER
X	UNCLASSIFIED

EXAMPLE

TRANSMITTER AS AN ACCESSORY TO A FLOW ELEMENT

SPECIAL CASES

ON AND OFF EVENT LIGHTS

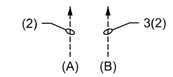
ON-OFF HAND SWITCH, MAINTAINED CONTACT SWITCH (CONTROLLED DEVICE WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE).

STOP-START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).

LINE LEGEND

- PRIMARY PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)
- SECONDARY PROCESS
- BYPASS PROCESS
- PROCESS (OPEN CHANNEL)
- ANALOG SIGNAL (4 TO 20 mAdc, ETC.)
- DISCRETE (ON/OFF, ETC.)
- PNEUMATIC SIGNAL
- FILLED SYSTEM SIGNAL
- HYDRAULIC SYSTEM SIGNAL
- DATA LINK
- BUILDING OR FACILITY BOUNDARY
- PACKAGE SYSTEM EQUIPMENT
- TYPICAL BREAK

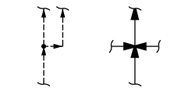
PARALLELING LINES



(A) TOTAL OF 2 SIGNALS

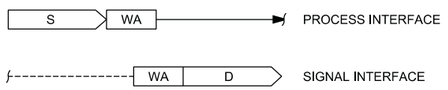
(B) 3 TYPICAL SETS OF 2 SIGNALS EACH. TOTAL OF 6 SIGNALS.

CONNECTING LINES

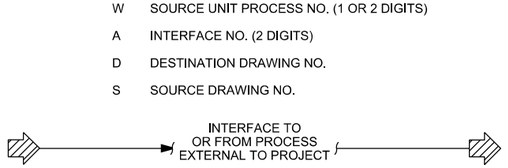


NON-CONNECTING LINES

INTERFACE SYMBOLS



- W SOURCE UNIT PROCESS NO. (1 OR 2 DIGITS)
- A INTERFACE NO. (2 DIGITS)
- D DESTINATION DRAWING NO.
- S SOURCE DRAWING NO.



SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

XXXXSSSSSS

XXXX	ASSET NUMBER
SSSSSS	SUCCEEDING CHARACTERS

ABBREVIATIONS & LETTER SYMBOLS

AC	ALTERNATING CURRENT
AM	AUTO-MANUAL
CAM	COMPUTER-AUTO-MANUAL
CCS	CENTRAL CONTROL SYSTEM
CL_2	CHLORINE
CM	COMPUTER-MANUAL
COD	CHEMICAL OXYGEN DEMAND
CP-X	CONTROL PANEL NO. X
DC	DIRECT CURRENT
DCS	DISTRIBUTED CONTROL SYSTEM
DCU	DISTRIBUTED CONTROL UNIT
DO	DISSOLVED OXYGEN
FCL_2	FREE CHLORINE RESIDUAL
FOS	FAST-OFF-SLOW
FOSA	FAST-OFF-SLOW-AUTO
FOSR	FAST-OFF-SLOW-REMOTE
FP-W-X	FIELD PANEL NO. WX (W=UNIT PROCESS NUMBER X=PANEL NUMBER)
FR	FORWARD-REVERSE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
ISR	INTRINSICALLY SAFE RELAY
LEL	LOWER EXPLOSIVE LIMIT
LOS	LOCKOUT STOP
LR	LOCAL-REMOTE
MA	MANUAL-AUTO
MC	MODULATE-CLOSE
MCC-X	MOTOR CONTROL CENTER NO. X
MSC	MANUFACTURER SUPPLIED CABLE
OC	OPEN-CLOSE(D)
OCA	OPEN-CLOSE-AUTO
OCR	OPEN-CLOSE-REMOTE
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN-STOP-CLOSE
pH	HYDROGEN ION CONCENTRATION
PLC	PROGRAMMABLE LOGIC CONTROLLER
RIO	REMOTE I/O UNIT
RM-X	REMOTE MULTIPLEXING MODULE NO. X
RTU-X	REMOTE TELEMETRY UNIT NO. X
SF	SLOWER-FASTER
SS	START-STOP
SSC	SUPERVISORY SET POINT CONTROL
TCL_2	TOTAL CHLORINE RESIDUAL
TOC	TOTAL ORGANIC CARBON
TOD	TOTAL OXYGEN DEMAND
TURB	TURBIDITY
VHC	VOLATILE HYDROCARBONS
VIB	VIBRATION
$\triangle$	DIFFERENCE
Σ	SUM
×	MULTIPLY
÷	DIVIDE
F(X)	CHARACTERIZED
X^n	RAISED TO THE Nth POWER
$\sqrt{\ }$	SQUARE ROOT
AVG	AVERAGE
1:1	REPEAT OR BOOST
>	SELECT HIGHEST SIGNAL
<	SELECT LOWEST SIGNAL
}	BIAS
%	GAIN OR ATTENUATE

GENERAL NOTES

1. COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK (∗) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
2. COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (∗∗) ARE TO BE PROVIDED UNDER DIVISION 26, ELECTRICAL.
3. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THE PROJECT.

PROFESSIONAL ENGINEER REGISTERED 11623 STATE OF IDAHO TOBY PALIN
12/15/2014

NO.	DATE	REVISION	DSGN	DR	CHK	APVD
			T PALIN	M RARDIN	L WOOD	G THOMPSON
					BY	APVD

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
INSTRUMENTATION AND CONTROL LEGEND -1

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-008
SHEET	7 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-008.dgn PLOT DATE: 2014\12\05 PLOT TIME: 10:13:49 AM

VALVE SYMBOLS

- GATE
- KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- VEE-BALL
- PLUG
- SEAT PORT ECCENTRIC PLUG
- DIAPHRAGM
- PINCH
- NEEDLE
- SWING CHECK
- BALL CHECK
- BACKFLOW PREVENTER
- ROTARY
- TELESCOPE
- SAMPLE
- MUD
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- REGULATED SIDE PRESSURE CONTROL
- PRESSURE REGULATION (CLAY-TYPE)
- MULTI-PORT VALVE (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- ANGLE GATE

GATE SYMBOLS

- SLUICE
- BUTTERFLY
- FABRICATED SLIDE
- FLAP
- STOP LOG
- SHEAR

ACTUATOR SYMBOLS

- PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING
- PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT
- ELECTRIC MOTOR
- SOLENOID
- VALVE POSITIONER
- HYDRAULIC
- DIAPHRAGM, DIFFERENTIAL PRESSURE
- ELECTROHYDRAULIC
- MANUAL

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL, OR HYDRAULIC)

XX: FO FAIL OPEN
FC FAIL CLOSED
FLP FAIL TO LAST POSITION

PRIMARY ELEMENT SYMBOLS

- PARSHALL FLUME
- WEIR
- ORFICE PLATE
- FLOW TUBE
- PITOT-STATIC
- VORTEX METER
- ULTRASONIC FLOWMETER
- ELECTROMAGNETIC FLOWMETER
- PROPELLER OR TURBINE METER
- THERMAL FLOWMETER
- LEVEL (BUBBLER TUBE)
- LS — LEVEL (FLOAT)
- FI — ROTAMETER
- DE — DENSITY METER
- XX — GENERIC
- LE — LEVEL

MISCELLANEOUS SYMBOLS

- V — VENT TO ATMOSPHERE
- AIR GAP
- T — DRIP TRAP
- PIG INSERT POINT
- PIG CATCH POINT
- A — SELF CONTAINED AIR SUPPLY
- AP — AIR PURGE SET
- F — FLUSHING CONNECTION
- S — SEAL WATER SET
- WP — WATER PURGE SET
- FLEXIBLE CONNECTION
- AERATOR
- DIAPHRAGM SEAL
- ANNULAR DIAPHRAGM SEAL
- SS — COMPOSITE SAMPLER
- FLAME TRAP
- CALIBRATION COLUMN
- S — INLINE SILENCER
- BLIND FLANGE
- PIPE CAP
- STRAINER
- BASKET STRAINER
- FILTER
- PULSATION DAMPENER
- EXPANSION CHAMBER

FFLCPLLLX — PANEL CONTINUED ON SAME OR OTHER DRAWING
PANEL OUTLINE
PANEL NAME

- 120V — 120 VOLT, 60 HZ POWER
- 480V — 480 VOLT, 60 HZ POWER
- XX — AIR SET XX = SUPPLY PRESSURE IN PSIG.
- PLUG
- RECEPTACLE
- RUPTURE DISK (VACUUM)
- RUPTURE DISK (PRESSURE)
- TV — TV MONITOR
- TV — TV CAMERA
- A, B → AND → C — LOGIC ELEMENT: IF A AND NOT B THEN C
- A, B → OR → C — LOGIC ELEMENT: IF A OR B THEN C
- RADIO ANTENNA
- I — INTERLOCK, SEE CONTROL DIAGRAMS
- OR
- I
- VOICE COMMUNICATION POINT
- SKIMMING MECHANISM
- SCREW CONVEYOR
- MIXER
- ELECTRIC MOTOR

PUMP AND COMPRESSOR SYMBOLS

- CENTRIFUGAL PUMP (DRY PIT) XX
- CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP XX
- RECIPROCATING OR METERING PUMP (POSITIVE DISPLACEMENT) XX
- DIAPHRAGM PUMP XX
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT) XX
- PROGESSING CAVITY PUMP XX
- COMPRESSOR (CENTRIFUGAL) XX
- COMPRESSOR (PISTON) XX
- BLOWER OR FAN (CENTRIFUGAL) XX
- EJECTOR
- PISTON PUMP XX
- SUBMERSIBLE SUMP PUMP XX
- ROTARY PUMP
- VACUUM PUMP
- SCREW PUMP

XX: AS ADJUSTABLE SPEED
CS-1 CONSTANT SPEED (SINGLE SPEED)
CS-2 CONSTANT SPEED (TWO SPEED)

FLOW STREAM IDENTIFICATION

SEE PIPING SCHEDULE FOR FLOW STREAM IDENTIFICATION

PROFESSIONAL ENGINEER REGISTERED 11623 STATE OF IDAHO TOBY PALIN
12/15/2014

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		T PALIN	M RARDIN	L WOOD	APVD	G THOMPSON	

CH2MHILL®

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

GENERAL
INSTRUMENTATION AND CONTROL LEGEND -2

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-009
SHEET	8 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-009.dgn PLOT DATE: 2014\12\05 PLOT TIME: 10:14:47 AM

DESIGN CRITERIA

1. APPLICABLE CODE: 2012 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE CITY OF NAMPA, IDAHO AND ALL OTHER APPLICABLE LOCAL AGENCIES.

2. REFER TO THE DRAWINGS FOR ADDITIONAL AND SPECIFIC STRUCTURE LOADINGS AND REQUIREMENTS.

3. ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS SPECIFICALLY NOTED OTHERWISE.

4. DEAD LOADS:
   A. SELF WEIGHT

5. ROOF LOADS:

GROUND SNOW LOAD, Pg	= 1.2 PSF
TERRAIN CATEGORY	= C
SNOW EXPOSURE FACTOR, Ce	= 1.0
THERMAL FACTOR, Ct	= 1.0
SLOPE REDUCTION FACTOR, Cs	= 1.0
IMPORTANCE FACTOR, I	= 1.1
MINIMUM FLAT ROOF SNOW LOAD, Pf	= 20 PSF PER CITY OF NAMPA

   SEE SNOW DRIFT DIAGRAMS ON ROOF PLAN(S) FOR AREAS WITH INCREASED DRIFT LOADS.

LIVE LOAD	= 20 PSF
MISCELLANEOUS MECHANICAL AND ELECTRICAL LOADS	= 10 PSF

   DEFLECTION CRITERIA FOR CONTRACTOR DESIGNED ROOF FRAMING MEMBERS:

TOTAL LOAD	L/180
LIVE LOAD	L/240
SNOW LOAD	L/240

   WHERE L IS THE MEMBER SPAN LENGTH

6. FLOOR LIVE LOADS:

OFFICE	100 PSF
ELECTRICAL ROOM	300 PSF
MECHANICAL ROOM	200 PSF
CORRIDORS, EXITS, STAIRS	100 PSF
WALKWAYS AND ELEVATED PLATFORMS	100 PSF

7. WIND LOADS (FACTORED):

BASIC WIND SPEED (3-SECOND GUST), V	= 120 MPH
EXPOSURE CATEGORY	= C
INTERNAL PRESSURE COEFFICIENT, GCpi	= 0.18+/-
RISK CATEGORY	= III
IMPORTANCE FACTOR, Iw	= 1.0

8. SEISMIC LOADS (FACTORED):

MAPPED SPECTRAL RESPONSE ACCELERATIONS	
S_S	= 0.279g
S_1	= 0.100g
DESIGN SPECTRAL RESPONSE ACCELERATIONS	
S_{DS}	= 0.293g
S_{D1}	= 0.160g
SITE CLASS	= D
RISK CATEGORY	= III
SEISMIC DESIGN CATEGORY	= C
IMPORTANCE FACTOR, Ie	= 1.25

	AERATION BASIN 3	PRIMARY EFFLUENT PUMP STATION (PEPS)	PEPS ELECTRICAL BUILDING
SEISMIC FORCE RESISTING SYSTEM	REINFORCED CONCRETE WALL		ORDINARY REINFORCED MASONRY SHEAR WALLS
ANALYSIS PROCEEDURE	LIQUID-CONTAINING CONCRETE STRUCTURES (ACI-350.3-06)		EQUIVALENT LATERAL FORCE (ASCE 7-10, SECTION 12.8)
RESPONSE COEFFICIENT, R	Ri = 3.0 Rc = 1.0	Ri = 3.0 Rc = 1.0	2
Cs	Ci = 0.272 Cc = 0.063	Ci = 0.272 Cc = 0.063	0.183
DESIGN BASE SHEAR, V (FACTORED)	–	–	39.4 KIPS

9. SOIL DESIGN PARAMETERS:

A. NET ALLOWABLE SOIL BEARING PRESSURES:	2,000 PSF
B. EQUIVALENT DRAINED FLUID PRESSURES:	
ACTIVE:	40 PCF
AT REST:	60 PCF
PASSIVE:	250 PCF
C. EQUIVALENT UNDRAINED FLUID PRESSURES:	
ACTIVE:	75 PCF
AT REST:	90 PCF
PASSIVE:	250 PCF
D. VERTICAL SURCHARGE:	2 FT OF SOIL WEIGHT
E. NATIVE SOIL UNIT WEIGHT:	125 PCF
F. GROUND WATER (GW) ELEVATION:	
NORMAL HIGH GW	EL 2450 FT+/-
100 YEAR FLOOD	EL 2453 - 2459 FT
G. FACTOR OF SAFETY FOR UPLIFT RESISTANCE (SOIL FRICTION AND WEDGE FAILURE NOT CONSIDERED):	
NORMAL HIGH GW ELEVATION:	FOS = 1.25
100 YEAR FLOOD ELEVATION:	FOS = 1.10

10. FROST DEPTH: 24 IN

GENERAL INFORMATION

1. FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

2. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.

3. VERIFY FINAL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION OF THESE ELEMENTS.

4. FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.

5. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.

6. VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.

7. INFORMATION (DETAILING, DIMENSIONS, CONFIGURATIONS, AND ELEVATIONS, ETC.) OF EXISTING CONSTRUCTION SHOWN REFLECTS AVAILABLE EXISTING DESIGN DOCUMENTS, AND DOES NOT NECESSARILY REPRESENT THE AS-CONSTRUCTED CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS, ELEVATIONS AND DETAILING OF THE EXISTING STRUCTURES PRIOR TO UNDERTAKING ANY WORK THAT IS AFFECTED BY THE EXISTING STRUCTURE.

INSPECTION AND TESTING

1. SPECIAL INSPECTION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR INSPECTIONS REQUIRED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL SCHEDULE BOTH INSPECTIONS.

2. SPECIFIED CONCRETE AND MASONRY AND OTHER MATERIAL TESTING RELATED TO SPECIAL INSPECTION DURING CONSTRUCTION WILL BE OWNER FURNISHED.

3. SPECIFIED LABORATORY TEST MIXES AND SIMILAR TEST RESULTS TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO SPECIFICATIONS, AND SUBMITTED FOR REVIEW PRIOR TO ACCEPTANCE FOR USE ON THE PROJECT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. SPECIAL INSPECTION, TESTING AND OBSERVATION (OWNER FURNISHED) IS REQUIRED IN ACCORDANCE WITH IBC SECTIONS 110 AND 1704 AS INDICATED IN THE STATEMENT OF SPECIAL INSPECTION.

5. THE CONTRACTOR SHALL SCHEDULE THE SPECIAL INSPECTION VISITS, PROVIDE 48 HOURS NOTICE TO THE INSPECTOR, AND PROVIDE SAFE ACCESS TO ITEMS TO BE INSPECTED. THE SPECIAL INSPECTOR WILL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION. DISCREPANCIES WILL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.

7. SPECIAL INSPECTION AND ASSOCIATED TESTING REPORTS WILL BE SUBMITTED TO THE ENGINEER, CONTRACTOR, BUILDING OFFICIAL, AND OWNER WITHIN ONE WEEK OF INSPECTION OR WITHIN ONE WEEK OF TEST COMPLETION. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES WILL BE SUBMITTED.

GEOTECHNICAL OBSERVATION

1. SPECIAL INSPECTION (OWNER FURNISHED) IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1705.6 ON THE FOLLOWING PORTIONS OF THE WORK:
   A. FILL BELOW STRUCTURES: SEE SPECIFICATION SECTION 01 45 33 SPECIAL INSPECTION AND TESTING FOR ADDITIONAL INFORMATION.

FOUNDATIONS

1. REFER TO GEOTECHNICAL DATA REPORT "GEOTECHNICAL ENGINEERING EVALUATION - NAMPA WASTEWATER TREATMENT PLANT UPGRADES" PREPARED BY STRATA, DATED JANUARY 10, 2014.

2. EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE OR DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.

3. WATER HOLDING BASIN FOUNDATIONS AND SLABS SHALL BEAR ON 6 INCHES OF TYPE 1 CRUSHED AGGREGATE BASE (PER ISPWC SECTION 802) OVERLAYING 18 INCHES OF DRAIN ROCK (PER 33 46 16, UNDERDRAIN SYSTEM).

4. BUILDING FLOOR SLABS ON GRADE AND SHALLOW FOOTINGS SHALL BEAR ON 6 INCHES OF TYPE 1 CRUSHED AGGREGATE BASE (PER ISPWC SECTION 802).

5. FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OR QUALIFIED DESIGNEE PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC BORINGS, TEST PITS, TESTING AND DATA REPORTS.

6. NO BACKFILL SHALL BE PLACED BEHIND WALLS UNTIL THE WALLS HAVE ATTAINED 100 PERCENT AND TOP SUPPORTING SLAB'S CONCRETE HAS ATTAINED 80 PERCENT OF THEIR SPECIFIED 28 DAY COMPRESSIVE STRENGTH, OR UNTIL TOP-OF-WALL FRAMING SYSTEMS, INCLUDING STEEL OR WOOD DIAPHRAGMS, HAVE BEEN COMPLETED.

7. NO BACKFILL SHALL BE PLACED BEHIND CANTILEVERED, FREE TOP WALLS UNTIL THE CONCRETE HAS ATTAINED 100 PERCENT OF ITS SPECIFIED 28 DAY COMPRESSIVE STRENGTH.

FORMWORK, SHORING, AND BRACING

1. STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.

2. TEMPORARY SHORING SHALL REMAIN IN PLACE UNTIL ELEVATED CONCRETE FLOOR OR SLABS HAVE REACHED 80 PERCENT OF THE 28 DAY COMPRESSIVE STRENGTH AS DETERMINED BY FIELD CYLINDER BREAKS.

3. "BURY"BARS OR "CARRIER"BARS ARE NOT ALLOWED FOR THE BOTTOM MATS OF REINFORCING IN ALL ELEVATED SLABS AND ARE NOT ALLOWED FOR THE TOP MATS OF REINFORCING IN ELEVATED SLABS LESS THAN 12 INCHES THICK.

CONCRETE REINFORCING

1. REINFORCING STEEL:
   TYPICAL: ASTM A615, GRADE 60

2. FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".

3. MINIMUM REINFORCING FOR CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:

THICKNESS	REINF EACH WAY	LOCATION
6"	#4@12"	CENTERED
8"	#5@12"	CENTERED
10"	#4@12"	EACH FACE
12"	#5@12"	EACH FACE

   PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

CONCRETE REINFORCING (CONTINUED)

5. CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE:

WHEN PLACED ON GROUND:	3"
INTERIOR, FINISHED, HUMIDITY CONTROLLED AREAS:	
WALLS, SLABS AND JOISTS	3/4"
BEAM STIRRUPS AND COLUMN TIES	1 1/2"
OTHER CONCRETE SURFACES	2"

6. REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING DETAIL 0330-003. WALL CORNER REINFORCING SIZES AND SPACINGS SHALL BE AS SHOWN ON THE DRAWINGS AND REFERENCED TO THIS DETAIL. TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE CORNER HORIZONTAL REINFORCING.

7. 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.

8. WALL CORNER AND WALL INTERSECTION REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING WALLS, AS INDICATED IN DETAIL 0330-003 .

9. WALL FOOTING CORNER AND INTERSECTION REINFORCEMENT BARS SHALL BE EXTENDED INTO CONNECTING FOOTINGS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING FOOTING. OUTSIDE FACE WALL FOOTING REINFORCEMENT SHALL BE LAPPED WITH CORNER BARS. ALL WALL FOOTING REINFORCEMENT SHALL BE CONTINUOUS THROUGH COLUMNS OR PILASTERS FOOTINGS.

10. LAP VERTICAL WALL BARS WITH DOWELS FROM BASE SLABS AND EXTEND INTO TOP FACE OF ROOF SLABS AND LAP WITH TOP SLAB REINFORCEMENT. PROVIDE A MINIMUM OF FOUR FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL SHOWN OR REQUIRED BY NOTES ABOVE.

11. LOCATE ELEVATED SLAB AND BEAM TOP BAR SPLICES AT MIDSPAN AND BOTTOM BAR SPLICES AT SUPPORTS.

12. REINFORCING STEEL FOR FOOTINGS AND SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON BAR SUPPORTS WITH SPACERS TO KEEP REINFORCING ABOVE THE PREPARED GRADE. LIFTING REINFORCING OFF GRADE DURING CONCRETE PLACEMENT IS NOT PERMITTED.

13. FOR REINFORCING AROUND OPENINGS, SEE DETAILS 0330-001 AND 0330-002.

14. REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

CONCRETE DESIGN STRENGTH = 4,000 PSI AT 28 DAYS[3] GRADE 60 REINFORCING STEEL										
BAR SIZE		#3	#4	#5	#6	#7	#8	#9	#10	#11
LAP SPLICE LENGTH										
SPACING = 3"	TOP BAR [2]	1'-4"	1'-8"	2'-1"	3'-0"	5'-2"	6'-8"	8'-6"	10'-10"	13'-4"
	OTHER BAR	1'-4"	1'-4"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"
SPACING = 4"	TOP BAR [2]	1'-4"	1'-8"	2'-0"	2'-5"	3'-10"	5'-0"	6'-5"	8'-1"	10'-0"
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	3'-0"	3'-11"	4'-11"	6'-3"	7'-8"
SPACING ≥ 6"	TOP BAR [2]	1'-4"	1'-8"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-2"	7'-5"
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"
EMBEDMENT LENGTH										
SPACING = 3"	TOP BAR [2]	1'-0"	1'-3"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-10"	3'-1"	4'-0"	5'-1"	6'-5"	7'-11"
SPACING = 4"	TOP BAR [2]	1'-0"	1'-3"	1'-7"	1'-10"	3'-0"	3'-11"	4'-11"	6'-3"	7'-8"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-4"	3'-0"	3'-10"	4'-10"	5'-11"
SPACING ≥ 6"	TOP BAR [2]	1'-0"	1'-3"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-1"	2'-5"	3'-0"	3'-8"	4'-5"

1. LAP LENGTHS ARE BASED ON MINIMUM CONCRETE COVER OF 2". LONGER LENGTHS ARE REQUIRED FOR CONCRETE COVER LESS THAN 2".
2. TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
3. WHERE 3500 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 7 PERCENT.

CAST IN PLACE CONCRETE

1. 28-DAY COMPRESSIVE STRENGTHS:

HYDRAULIC STRUCTURES:	4000 PSI
BUILDING STRUCTURES:	4000 PSI
CONCRETE FILL:	3500 PSI
CURBS AND SIDEWALKS:	3500 PSI
DUCT BANKS AND PIPE ENCASEMENTS NOT INTEGRAL WITH FOUNDATIONS:	3500 PSI

2. DESIGN STRENGTHS ARE SAME AS 28-DAY COMPRESSIVE STRENGTHS.

3. CONTINUOUS WATERSTOP AS SPECIFIED SHALL BE INSTALLED IN CONSTRUCTION JOINTS OF WATER HOLDING BASINS, CHANNELS, AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.

4. CONSTRUCTION JOINTS INDICATED ARE SUGGESTED LOCATIONS. CONTRACTOR MAY REVISE LOCATION OF JOINTS, SUBJECT TO SPECIFIED REQUIREMENTS. LAYOUT SHOWING ALL CONSTRUCTION JOINT LOCATIONS SHALL BE SUBMITTED FOR REVIEW BY ENGINEER.

5. ROUGHEN AND CLEAN CONSTRUCTION JOINTS IN WALLS AND SLABS AS SPECIFIED PRIOR TO PLACING ADJACENT CONCRETE.

6. COORDINATE PLACEMENT OF OPENINGS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.

7. NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

8. DO NOT PLACE CONDUIT PARALLEL TO BEAM OR COLUMN REINFORCEMENT UNLESS SPECIFICALLY INDICATED IN DRAWINGS.

9. PATCH FORM TIE HOLES IN ACCORDANCE WITH DETAIL 0310-051.

PROFESSIONAL ENGINEER REGISTERED 10819 STATE OF IDAHO WAYNE W. KOHLER 5/22/14

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		W KOHLER	L HENDERSHOTT	B HERMAN	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
STRUCTURAL NOTES - 1

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-013
SHEET	9 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-013.dgn PLOT DATE: 2014\12\15 PLOT TIME: 11:42:28 AM

CONCRETE UNIT MASONRY

1. MASONRY WALL TYPE: ORDINARY
2. DESIGN COMPRESSIVE STRENGTH, f'm, OF THE FINISHED ASSEMBLY AND MATERIAL PROPERTIES SHALL BE PER THE TABLE BELOW.
3. MORTAR: ASTM C270, TYPE S, HYDRATED.
4. GROUT: ASTM C476 COARSE GROUT. USE OF WATER REDUCERS OR SUPERPLASTICIZERS IS NOT PERMITTED.
5. CONCRETE MASONRY UNITS: ASTM C90, MEDIUM WEIGHT, LINEAR SHRINKAGE SHALL NOT EXCEED 0.065 PERCENT.
6.

DESIGN COMPRESSIVE STRENGTH f 'm (PSI)	UNIT STRENGTH (PSI)	GROUT STRENGTH (PSI) MIN / MAX	MORTAR PROPERTIES
1,500	1,900	2,000 / 3500	Type S

7. PLACE COURSES IN WALLS, COLUMNS, AND PILASTERS IN RUNNING BOND PATTERN.
8. PROVIDE MATCHING FOUNDATION DOWELS FOR ALL TYPICAL AND ADDITIONAL VERTICAL BARS.
9. LAP VERTICAL REINFORCING BARS 48 BAR DIAMETERS WITH FOUNDATION DOWELS, EXCEPT BARS PLACED EACH FACE IN CMU SHALL BE LAPPED 60 BAR DIAMETERS. LAP ALL OTHER VERTICAL BARS 72 BAR DIAMETERS.
10. LAP ALL VERTICAL BARS IN CANTILEVER WALLS, INCLUDING FOUNDATION DOWELS, 72 BAR DIAMETERS.
11. STAGGER ADJACENT LAP SPLICES BY 24 INCHES WHEN SEPARATED BY 3 INCHES OR LESS.
12. PROVIDE NUMBER OF FULL HEIGHT VERTICAL BARS AT EDGES OF OPENINGS AS SHOWN IN DETAIL 0422-004.
13. PROVIDE FULL HEIGHT VERTICAL BARS IN 3 CELLS AT WALL CORNERS AND INTERSECTIONS AS SHOWN IN DETAIL 0422-001.
14. PROVIDE HORIZONTAL CORNER AND INTERSECTION BARS WITH LAP LENGTHS AS SHOWN IN DETAIL 0422-001.
15. PROVIDE REINFORCED LINTELS ABOVE AND REINFORCED BOND BEAMS BELOW OPENINGS AS SHOWN IN DETAIL 0422-002.
16. PROVIDE FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS IN CELLS ADJACENT TO OPENINGS AS SHOWN IN DETAIL 0422-002.
17. GROUTING: PARTIALLY GROUT WALLS;
    - A. DO NOT SOLID GROUT WALLS UNLESS SO INDICATED ON THE DRAWINGS.
    - B. WHERE REBAR IS SPACED AT 32 INCHES ON CENTER OR GREATER EACH WAY, GROUT ONLY CELLS CONTAINING REBAR.
    - C. WHERE REBAR IS SPACED AT 24 INCHES ON CENTER OR LESS EITHER WAY, SOLID GROUT CELLS.
    - D. SOLID GROUT ALL PIERS, COLUMNS, HEADERS, AND BOND BEAMS.
    - E. SOLID GROUT ADDITIONAL MASONRY AREAS SPECIFICALLY INDICATED ON THE DRAWINGS.
    - F. FILL NON-GROUTED CELLS WITH INSULATION WHERE WALL TYPES SHOWN ON ARCHITECTURAL DRAWINGS REQUIRE INSULATED MASONRY CELLS.
18. MASONRY UNIT AND GROUT TESTING SHALL BE IN CONFORMANCE WITH 2012 IBC "UNIT STRENGTH METHOD". TESTING WILL BE OWNER FURNISHED AS INDICATED ON THE STATEMENT OF SPECIAL INSPECTION PLAN PROVIDED ON THE DRAWINGS. PRISM TEST METHOD MAY BE SUBMITTED AS AN ALTERNATIVE OR MAY BE REQUIRED BY OWNER'S REPRESENTATIVE TO VERIFY WORK.
19. THE MINIMUM REINFORCING FOR REINFORCED CONCRETE BLOCK WALLS SHALL BE AS FOLLOWS. PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF WALLS WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

WALL THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING	LOCATION
8"	#6@48"	#5@48"	CENTERED
12"	#6@48"	#6@48"	EACH FACE

20. DO NOT PLACE CONDUIT IN CELLS CONTAINING PARALLEL REINFORCEMENT.

WELDING

1. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS):
   D1.1, STRUCTURAL WELDING CODE STEEL
   D1.2, STRUCTURAL WELDING CODE ALUMINUM
   D1.3, STRUCTURAL WELDING CODE SHEET STEEL
   D1.4, STRUCTURAL WELDING CODE REINFORCING STEEL
   D1.6, STRUCTURAL WELDING CODE STAINLESS STEEL
2. REPAIR WELDS FOUND DEFECTIVE IN ACCORDANCE WITH AWS D1.1 SECTION 5.26.
3. USE INTERMITTENT WELDS AT FIELD WELDS OF EMBED PLATES AND ANGLES TO AVOID SPALLING OR CRACKING OF THE EXISTING CONCRETE.
4. BUTT JOINT WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP) UNLESS INDICATED OTHERWISE.

STRUCTURAL STEEL AND METAL FABRICATIONS

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

W-SHAPES	A992
MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETC.	A36
HOLLOW STRUCTURAL SECTIONS (HSS)	A500, GRADE B
STEEL PIPE	A53, GRADE B
STAINLESS STEEL SHAPES	A276

2. ALUMINUM SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

STRUCTURAL SHAPES	B308
PLATES	B209

3. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, CURRENT EDITION, AND CURRENT OSHA STANDARDS.
4. FASTENERS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO THE FOLLOWING ASTM STANDARDS EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE:

UNLESS SHOWN OTHERWISE	A325-N
ANCHOR BOLTS (AB)	
STAINLESS STEEL	F593, AISI TYPE 316, CONDITION CW
STEEL OR GALVANIZED STEEL	F1554, GR 36 / A153
MACHINE BOLTS (MB)	
STEEL	A307
STAINLESS STEEL	F593, AISI TYPE 316, CONDITION CW
GALVANIZED STEEL	A307 / A153
ALUMINUM	F468, ALLOY 2024-T4

5. ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE OF OIL, DIRT AND PAINT.
6. NO HOLES OTHER THAN THOSE SPECIFICALLY DETAILED SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS. NO CUTTING OR BURNING OF STRUCTURAL STEEL IS PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

OPEN WEB METAL JOIST FRAMING

1. JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AISC AND THE STEEL JOIST INSTITUTE (SJI).
2. DESIGN JOISTS FOR THE FOLLOWING LOADS:

ROOF LIVE LOAD	20 PSF
SUPERIMPOSED ROOF DEAD LOAD:	
A. ROOFING	1.0 PSF (TOP CHORD)
B. METAL DECK	2.5 PSF (TOP CHORD)
C. INSULATION	10 PSF (TOP CHORD)
D. CEILING	--- PSF (BOTTOM CHORD)
E. MECH/ELEC/PIPING	10 PSF AND 150 POUND POINT LOAD AT ANY PANEL POINT (BOTTOM CHORD)
F. SPRINKLERS	--- PSF (BOTTOM CHORD)
G. MISCELLANEOUS	--- PSF (TOP AND BOTTOM CHORD)

3. ROOF SNOW LOAD FOR THE DESIGN OF THE JOISTS SHALL BE:

A. BALANCED SNOW LOAD:	25 PSF (TOP CHORD)
B. DRIFTING:	SEE DRAWINGS

4. SNOW LOADS SHALL BE APPLIED TO THE JOISTS PER THE REQUIREMENTS OF IBC AND ASCE 7-10 CHAPTER 7.
5. GROSS WIND UPLIFT LOADS ON THE JOISTS:
   TYPICAL ROOF JOIST (TOP CHORD) = 34 PSF OUTWARD (GROSS, FACTORED, COMPONENT AND CLADDING LOAD).
6. WIND ANALYSIS FOR THE JOISTS SHALL USE THE PROVISIONS OF THE IBC AND ASCE 7-10 FOR COMPONENTS AND CLADDING.
7. LOADS INDICATED ON THE DRAWINGS AND ABOVE ARE MINIMUM DESIGN LOADS AND SHALL NOT BE CONSTRUED TO BE ALL LOADS APPLICABLE TO THE DESIGN OF THE JOISTS. DEAD LOADS INFERRED BY THE DRAWINGS WHICH WOULD BE INCLUDED IN COMMON PRACTICE, INCLUDING EQUIPMENT LOADS AND CONSTRUCTION LOADS, SHALL BE INCLUDED IN THE DESIGN.
8. VERIFY AND COORDINATE EQUIPMENT WEIGHTS, LOCATIONS, AND ATTACHMENT REQUIREMENTS PRIOR TO JOIST FABRICATION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE VERTICAL AND LATERAL SUPPORT OF EQUIPMENT AS SPECIFIED IN SECTION 01 60 01, ANCHORAGE AND BRACING. JOIST MANUFACTURER SHALL COORDINATE AND SUPPLY ADDITIONAL DIAGONAL WEB MEMBERS AT CONCENTRATED LOAD LOCATIONS.
9. JOIST SIZES AND CHORD SIZES INDICATED ON THE PLANS ARE MINIMUM ONLY. DESIGN BY THE JOIST MANUFACTURER MAY RESULT IN A LARGER SIZE. JOISTS SHALL HAVE DOUBLE ANGLE CHORDS.
10. PROVIDE CALCULATIONS, PRODUCT DATA, MATERIAL PROPERTIES, CONNECTION DETAILS, ETC FOR ALL TYPES OF JOISTS. CALCULATIONS SHALL BE STAMPED AND SIGNED BY AN ENGINEER REGISTERED IN THE STATE OF IDAHO.
11. JOIST BRIDGING, BOTTOM CHORD BRACING, AND OTHER ACCESSORIES SHALL BE PER THE MANUFACTURER'S STANDARDS AND AS INDICATED ON THE DRAWINGS. BRACING SHALL EXTEND TO WALLS, SEE DETAIL 0521-022.
12. JOISTS SHALL BE CAMBERED FOR DEAD LOAD AS REQUIRED BY SJI. PROVIDE STANDARD SJI CAMBER UNLESS NOTED OTHERWISE. JOIST CAMBER SHALL BE SHOWN ON SHOP DRAWINGS.

STEEL DECKING

1. FOR DECK SIZE, GAGE, AND FASTENING CONFIGURATIONS, SEE FRAMING PLANS. FASTENING CONFIGURATIONS SHOWN ARE SPECIFIC TO THE DECK PRODUCT USED AS BASIS OF DESIGN. CONTRACTOR SHALL FASTEN THE DECKING IN ACCORDANCE WITH INSTALLED DECK MANUFACTURER'S RECOMMENDATIONS TO MEET SPECIFIED CAPACITY REQUIREMENTS.
2. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3 "STRUCTURAL WELDING CODE SHEET STEEL".
3. DECKING SHALL HAVE A MINIMUM 1 1/2 INCHES BEARING ON SUPPORTS.
4. DECKING SHALL BE CONTINUOUS OVER THREE SPANS MINIMUM, EXCEPT WHERE SHOWN OTHERWISE.
5. FLOOR DECK RECEIVING CONCRETE FILL SHALL BE COMPOSITE TYPE.
6. LOCATE OPENINGS FOR EQUIPMENT PER OTHER DISCIPLINE DRAWINGS.
7. REINFORCE DECK FOR LARGER OPENINGS PER DETAIL 0531-021. REINFORCE SMALL OPENINGS AS SPECIFIED.

DEFERRED SUBMITTALS

1. DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO INSTALLATION OF THAT PORTION OF THE WORK OR ARE REQUIRED TO BE SUBMITTED FOR REVIEW ONLY BY THE ENGINEER.
2. WHERE DEFERRED SUBMITTALS INCLUDE ADDITIONAL MATERIALS, INSTALLATION, ANCHORAGE, OR CERTIFICATION OF COMPONENTS THAT REQUIRE SPECIAL INSPECTION AND/OR STRUCTURAL OBSERVATION TO MEET CODE REQUIREMENTS, THE DEFERRED SUBMITTAL SHALL INCLUDE SPECIFIC LINE ITEMS TO BE ADDED TO THE APPROPRIATE TABLES IN THE PROJECT'S STATEMENT OF SPECIAL INSPECTIONS PLAN IF THEY ARE NOT ALREADY IDENTIFIED.
3. THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS PER IBC SECTION 106.3.4.2 THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET BUILDING PERMITTING REQUIREMENTS FOR DESIGNED SYSTEMS. PRIOR TO INSTALLATION OF THE INDICATED STRUCTURAL ELEMENT, EQUIPMENT, DISTRIBUTION SYSTEM, OR COMPONENT OR ITS ANCHORAGE, THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS AND SUPPORTING DATA AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ADDITIONALLY, ACCEPTANCE INDICATED ON THE ENGINEER'S COMMENT FORM, ALONG WITH THE COMPLETED, FINAL SUBMITTAL SHALL THEN BE FILED BY THE CONTRACTOR AND ACKNOWLEDGED AS ACCEPTED BY THE PERMITTING AGENCY PRIOR TO INSTALLATION OF THESE ITEMS.

SPECIFICATION SECTION	CODE REQUIRED DEFERRED SUBMITTALS FOR REVIEW BY PERMITTING AGENCY
01 60 01	ANCHORAGE AND BRACING
05 52 00	METAL RAILINGS
05 21 19	OPEN WEB STEEL FRAMING
OTHER	ANY EQUIPMENT OR COMPONENT IN WHICH A TECHNICAL SPECIFICATION REQUIRES SUBMITTAL OF EQUIPMENT OR ANCHORAGE SYSTEM CALCULATIONS

PROFESSIONAL ENGINEER REGISTERED 10819 STATE OF IDAHO WAYNE W. KOHLER 3/22/16/14

NO.	DATE	DSGN	DR	CHK	APVD
		W KOHLER	L HENDERSHOTT	B HERMAN	G THOMPSON

REVISION BY APVD

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
STRUCTURAL NOTES - 2

BID DOCUMENTS

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-014
SHEET	10 of 157

STRUCTURAL ABBREVIATIONS

@	AT
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTION
ADDL	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
AHR	ANCHOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
ALLOW	ALLOWABLE
ALTN	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
APVD	APPROVED
ARCH.	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BETW	BETWEEN
BF	BOTTOM FACE
BLDG	BUILDING
BM	BEAM
BO	BOTTOM OF
BOT	BOTTOM
BRG	BEARING
C	CHANNEL OR C-SHAPE
C TO C	CENTER TO CENTER
CHKD PL	CHECKERED PLATE
CIPC	CAST-IN-PLACE CONCRETE
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION (WELD)
CL	CENTERLINE
CLR	CLEARANCE, CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CRSI	CONCERTE REINFORCING STEEL INSTITUTE
CTLJ	CONTROL JOINT
CTR	CENTER
CTRD	CENTERED
CU	CUBIC
d	PENNY (NAIL SIZE)
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEG	DEGREE
DET	DETAIL
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM.	DIMENSION
DIR	DIRECTION
DL	DEAD LOAD
DO	DITTO
DTI	DIRECT TENSION INDICATOR
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMBED	EMBEDMENT, EMBED
ENGR	ENGINEER
EQL	EQUAL
EQL SP	EQUALLY SPACED
EQPT	EQUIPMENT
EQUIV	EQUIVALENT
EW	EACH WAY
EXP JT	EXPANSION JOINT
EXST	EXISTING
EXT	EXTERIOR
FAB	FABRICATE, FABRICATION
FB	FLAT BAR
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOOR
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET, FOOT
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE, GAGE
GALV	GALVANIZED (HOT DIP)
GLB	GLUE LAMINATED BEAM
GRTG	GRATING
GVL	GRAVEL
H.A.S.	HEADED ANCHOR STUD
HDR	HEADER
HORIZ	HORIZONTAL
HPT	HIGH POINT
HSS	HOLLOW STRUCTURAL SECTION
HVAC	HEATING , VENTILATION, AND AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
I.F.	INSIDE FACE
IN.	INCH(ES)
INSUL	INSULATION
INTMD	INTERMEDIATE
INTR	INTERIOR
J	JOIST
JB	JOIST BEARING
JT	JOINT
KIP(S)	THOUSAND POUNDS
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE OR L-SHAPE
LB(S)	POUND(S) FORCE
LF	LINEAR FEET
LIW	LOAD INDICATING WASHER
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNTL	LINTEL
LONG.	LONGITUDINAL
LPT	LOW POINT
LSL	LONG SLOTTED HOLE
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MET.	METAL
MFD	MANUFACTURED
MFR(S)	MANUFACTURER (MANUFACTURER'S)
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
OPNG(S)	OPENING(S)
OPP	OPPOSITE
P	PILASTER
PERIM	PERIMETER
PJF	PREMOLDED JOINT FILLER
PJP	PARTIAL JOINT PENETRATION (WELD)
PKG	PACKAGE
PL	PLATE
PLCS	PLACES
PLF	POUNDS FORCE PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PRCST	PRECAST
PREFAB	PREFABRICATE(D)
PRELIM	PRELIMINARY
PRI	PRIMARY
PSF	POUNDS FORCE PER SQUARE FOOT
PSI	OPUNDS FORCE PER SQUARE INCH
PT	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE
R	RADIUS, RISER
RAD	RADIUS
RC	REINFORCED CONCRETE
RDAA	REBAR DOWEL ADHESIVE ANCHOR
RDW	REDWOOD
RECT	RECTANGULAR, RECTANGLE
REF	REFERENCE
REINF	REINFORCE, REINFORCING
REQD	REQUIRED
RST	REINFORCING STEEL
S	I-BEAM
SC	SLIP CRITICAL (BOLTS)
SCHED	SCHEDULE
SECT.	SECTION
SH	SHEET
SIM	SIMILAR
SOG	SLAB ON GRADE
SP	SPACE
SPEC(S)	SPECIFICATION(S)
SPECD	SPECIFIED
SPG	SPACING
SQ	SQUARE
SSL	SHORT SLOTTED HOLE
SST	STAINLESS STEEL
STD	STANDARD
STIF	STIFFENER
STIR.	STIRRUP
STL	STEEL
STR	STRAIGHT
STRL	STRUCTURAL
STRUCT	STRUCTURE
SYMM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
TAS	THREADED ANCHOR STUD
TC	TOP OF CONCRETE, TOP OF CURB
TEMP	TEMPERATURE
TF	TOP OF FOOTING, TOP FACE
THK	THICK
THKNS	THICKNESS
THRU	THROUGH
TM	TOP OF MASONRY
T.O.	TOP OF
TRANSV	TRANSVERSE
TST	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UNIF	UNIFORM, UNIFORMLY
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
W	WIDE FLANGE BEAM
W/	WITH
W/O	WITHOUT
WD	WOOD
WP	WORKING POINT
WS	WATERSTOP, WATER SURFACE
WT	WEIGHT
WWF	WELDED WIRE FABRIC

NOTES:
FOR ABBREVIATIONS NOT LISTED, SEE GENERAL ABBREVIATIONS AND ASME Y14.38 - "ABBREVIATIONS AND ACRONYMS FOR USE ON DRAWINGS AND RELATED DOCUMENTS" AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

PROFESSIONAL ENGINEER REGISTERED 10819 STATE OF IDAHO WAYNE W. KOHLER 12/16/14

NO.	DATE	DSGN	DR	CHK	APVD
		W KOHLER	L HENDERSHOTT	B HERMAN	G THOMPSON

REVISION BY APVD

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
STRUCTURAL ABBREVIATIONS

REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

BID DOCUMENTS

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-015
SHEET	11 of 157

FILENAME: 010-00-GEN-G-015.dgn PLOT DATE: 2014\12\08 PLOT TIME: 7:06:32 PM

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		EXISTING PIPE TO BE REMOVED
		EXISTING PIPE TO BE ABANDONDED IN PLACE
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		MECHANICAL JOINT
		BELL & SPIGOT JOINT (LEADED)
		HUB & SPIGOT JOINT (RUBBER GASKET)
		BALL JOINT
		ADAPTER SIDE GROOVED END ADAPTER FLANGE
		FLANGED COUPLING ADAPTER
		FLEXIBLE COUPLING
		STEEL BELLOWS EXP JOINT
		ELASTOMER BELLOWS EXP JOINT
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		CAP
		ANCHOR

MISCELLANEOUS PIPING SYMBOLS

- STRAINER
- SIGHT GLASS
- FLEXIBLE (ELASTOMER) PIPE CONNECTION
- GAUGE WITH COCK
- THERMOMETER
- ROTAMETER
- PIG LAUNCHER
- PIG CATCHER
- AIR SET (XX) XX = SUPPLY PRESSURE - PSIG
- TYPICAL INSTRUMENT SYMBOL (PS) (SEE I&C LEGEND) XXXXX-A

PIPE AND FITTING END PATTERNS

B	BELL	PE	PLAIN END
S	SPIGOT	GE	GROOVED END
F	FLANGE	MJ	MECHANICAL JOINT

EXAMPLE: F / MJ PE

- ELBOW, 90 DEGREE
- CROSS
- TEE
- ELBOW, 45 DEGREE
- LATERAL

NOTES:
1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
3. EXISTING PIPE AND EQUIPMENT IS SHOWN LIGHT-LINED AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY-LINED.

VALVE SYMBOLS

SINGLE LINE	DOUBLE LINE
GATE	
KNIFE GATE	OR
BUTTERFLY	OR
GLOBE	OR
BALL	OR
SEATING PORT	
ECCENTRIC PLUG	OR
PLUG OR COCK	OR
NEEDLE	OR
DIAPHRAGM	OR
PINCH	OR
SWING CHECK	OR
BALL CHECK	OR
DUCK BILL CHECK	OR

- HOSE VALVE (HV- X) OR (V-X) X = NO. IN SPECS
- SAMPLE
- MUD
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- REGULATED SIDE — PRESSURE CONTROL (INTERNAL PILOT)
- REGULATED SIDE — PRESSURE CONTROL (EXTERNAL PILOT)
- MULTI-PORT VALVE. ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- TELESCOPING SCUM VALVE

GATE SYMBOLS

EL. VIEW	PLAN VIEW	
		SLUICE
		BUTTERFLY
		FLAP
		SHEAR
		FABRICATED SLIDE

PIPING DESIGNATION

EXAMPLE:

16" RAS

16" RAS
- PIPE USE IDENTIFICATION LEGEND
- NOMINAL PIPE DIAMETER

GENERAL MECHANICAL NOTES:

1. PIPE SUPPORTS FOR PIPING LESS THAN 30 INCHES DIAMETER ARE NOT TYPICALLY SHOWN, EXCEPT WHERE SPECIFIC SUPPORT REQUIREMENTS EXIST. PIPE SUPPORT SYSTEMS ARE TO BE AS SPECIFIED IN SECTION 40 05 15 PIPING SUPPORT SYSTEMS AND AS INDICATED IN THE STANDARD DETAILS.
2. FOR FLOW STREAM IDENTIFICATION, REFER TO PIPING SCHEDULE.
3. ✳ = COMPONENTS OF A MECHANICAL EQUIPMENT PACKAGE. REFER ALSO TO RELATED P&IDS.
4. ENCASE ALL PIPES UNDER STRUCTURES.
5. AS SHOWN ON DRAWINGS, GROOVED COUPLINGS ARE PREFERRED FOR EXPOSED DI PIPE SYSTEMS.
6. WHERE A PIPE ANCHOR HAS BEEN LOCATED ON PLAN, THE DETAIL FOR THAT ANCHOR COMPONENT AND HARDWARE HAS BEEN CALCULATED BY ENGINEER.
7. FOR A PIPE SYSTEM AND FLOWSTREAM, WHERE AN ANCHOR HAS BEEN CALLED OUT, OTHER REQUIRED PIPE SUPPORTS ACT AS GUIDES AND SHALL BE CALCULATED BY CONTRACTOR.

PROFESSIONAL ENGINEER REGISTERED Lawrence Fettkether 3755 STATE OF IDAHO LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		L FETTKETHER	J PIGMAN	B RABINOWITZ	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
PROCESS MECHANICAL LEGEND

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-016
SHEET	12 of 157

BID DOCUMENTS

ONE LINE DIAGRAMS - 1

SYMBOL	DESCRIPTION
	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE
400	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE, UNO
AS AF OR AT AF	CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO
100/M	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE, UNO
400 400	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE, UNO
400 225	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE, UNO
100	SWITCH - CURRENT RATING INDICATED, 3 POLE, UNO
60 (3)	FUSE, RATING AND QUANTITY INDICATED
1	MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED
AFD RVSS, AFD, or DC	ELECTRONIC STARTER/SPEED CONTROL SS = AC SOLID STATE SOFT STARTER AFD = AC ADJUSTABLE FREQUENCY DRIVE DC = DC ADJUSTABLE SPEED DRIVE
	CABLE OR BUS CONNECTION POINT
K	KEY INTERLOCK
	SURGE ARRESTER (GAP TYPE)
10	CAPACITOR - KVAR INDICATED, 3 PHASE
3	MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED
VS V 0-600V	ANALOG METER WITH SWITCH - SCALE RANGE SHOWN V = VOLTAGE KW = KILOWATTS A = AMPERAGE KVAR = KILOVARS PF = POWER FACTOR
DPM	DIGITAL POWER METER (MULTIFUNCTION)
	GROUND
120/240V 15 KVA 1 PH	TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE
(3)	POTENTIAL TRANSFORMER, QUANTITY INDICATED (3)
100:5 (3)	CURRENT TRANSFORMER, RATIO(100:5) AND QUANTITY INDICATED (3)
	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS, RACEWAY, CONDUCTOR AND CONNECTION IN THIS DIVISION
EOL	ELECTRONIC OVERLOAD

NOTES:

1. THESE ARE STANDARD LEGEND SHEETS. SOME SYMBOLS AND ABBREVIATIONS MAY APPEAR ON THE LEGEND AND NOT ON THE DRAWINGS.
2. FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND STRUCTURAL/ARCHITECTURAL) SEE OTHER LEGENDS.

CONTROL DIAGRAMS - 1

SYMBOL	DESCRIPTION
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	3 POSITION SELECTOR SWITCH MAINTAINED CONTACT
HAND OFF REMOTE	SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION:

	POSITION		
CKT	HAND	OFF	REMOTE
1	X	O	O
2	O	O	X

X - CLOSED CONTACT
O - OPEN CONTACT

	TOGGLE SWITCH, ON-OFF TYPE
ON OFF	SELECTOR SWITCH, ON-OFF TYPE
	MUSHROOM HEAD SWITCH
A	INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR
A	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN S - STROBE B - BLUE R - RED C - CLEAR W - WHITE
ETM	ELAPSED TIME METER
M	MOTOR STARTER CONTACTOR COIL
CRX	CONTROL RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT
TDR X	TIME DELAY RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT
SV X	SOLENOID VALVE, X INDICATES NUMERICAL ORDER IN CIRCUIT
	CONTACT - NORMALLY OPEN
	CONTACT - NORMALLY CLOSED
	REMOTE DEVICE
	TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSES WHEN ENERGIZED AND TIMED OUT
	TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPENS WHEN ENERGIZED AND TIMED OUT
	TIME DELAY RELAY CONTACT, CLOSES WHEN ENERGIZED, OPENS WHEN TIMED OUT
	TIME DELAY RELAY CONTACT, OPENS WHEN ENERGIZED, CLOSES WHEN RE-ENERGIZED AND TIMED OUT
	MOTOR SPACE HEATER
	TERMINAL BLOCK, REMOTE
	TERMINAL BLOCK, INTERNAL
	FUSED TERMINAL BLOCK
SS	SURGE ARRESTOR, AC OR DC AS INDICATED BY SIGNAL TYPE
	FUSE, RATING INDICATED
CPT 120V	TRANSFORMER, CONTROL POWER

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
A	AMMETER, AMPERE, AUTOMATIC
AB SW	AIR-BREAK SWITCH
ABV	ABOVE
AC	ALTERNATING CURRENT
ACB	AIR-CIRCUIT BREAKER
ACC	AREA CONTROL CENTER
ACP	CENTER AREA CONTROL PANEL
ACSR	ALUMINUM CONDUCTOR STEEL-REINFORCED
ADJ	ADJUSTABLE
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHM	AMPERE-HOUR METER
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMM	AMMETER
AMP	AMPERE
AMPL	AMPLIFIER
ANN	ANNUNCIATOR
ANT	ANTENNA
APPROX	APPROXIMATE
AS	AMMETER SWITCH, AMPERE SENSOR
ASC	AUXILIARY SWITCH NORMALLY CLOSED
ASO	AUXILIARY SWITCH NORMALLY OPEN
ASU	AIR SUPPLY UNIT
ATC	AUTOMATIC TRANSFER CONTROL
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
BAT	BATTERY
BC	BARE COPPER
BKR	BREAKER
BLDG	BUILDING
BOT	BOTTOM
C	CONDUIT, CONTACTOR, CONDUCTOR, CLOSE
CB	CIRCUIT BREAKER
CC	CONTROL CABLE
CCS	CENTRAL CONTROL SYSTEM
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CLG	CEILING
COM	COMMUNICATIONS
CONN DIAG	CONNECTION DIAGRAM
CONT	CONTINUE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CPU	CENTRAL PROCESSING UNIT
CR	CONTROL RELAY COATED
CS	CONTROL STATION:C=CLOSE, T=TRIP
CT	CURRENT TRANSFORMER, CABLE TRAY
DC	DIRECT CURRENT
DCS	DISTRIBUTED CONTROL SYSTEM
DIV	DIVISION
DN	DOWN
DP	DISTRIBUTION PANEL
DPDT	DOUBLE-POLE DOUBLE-THROW
DPST	DOUBLE-POLE SINGLE-THROW
DS	DISCONNECT SWITCH
E	EMPTY
EA	EACH
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EG	ENGINE GENERATOR
EL	ELEVATION
ELEC	ELECTRIC
ELEM	ELEMENTARY
EMER	EMERGENCY
EMS	ENERGY MONITORING SYSTEM
EMU	ENERGY MONITORING UNIT
ENCL	ENCLOSURE
EP	EXPLOSION-PROOF
EQPT	EQUIPMENT
ETM	ELAPSED TIME METER
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
EXST	EXISTING
F	FORWARD, FREQ
FA	FIRE ALARM
FAP	FIRE ALARM PANEL
FDR	FEEDER
F, FU	FUSE

ABBREVIATION	DESCRIPTION
FF	FINISHED FLOOR
FI	FLOW INDICATOR
FLEX	FLEXIBLE CONDUIT
FLR	FLOOR
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FOC	FIBER OPTIC CABLE
FOPP	FIBER OPTIC PATCH PANEL
FP	FIELD PANEL
FREQ	FREQUENCY
FS	FLOAT SWITCH
FT	FLOW TRANSMITTER
FU	FUSE
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
FWD	FORWARD
G	GROUND
GALV	GALVANIZED
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
GPR	GENERATOR PROTECTOR RELAY
GRS	GALVANIZED RIGID STEEL CONDUIT
H	HIGH SPEED
HGT	HEIGHT
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HS	HAND SWITCH
HT	HEAT TRACE
HTC	HEAT TRACE CONTROLLER
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HZ	HERTZ
IC	INTERRUPTING CAPACITY
I & C	INSTRUMENTATION AND CONTROL
ID	INNERDUCTS
INCAND	INCANDESCENT
INST	INSTANTANEOUS
INT	INTERRUPTING
ISR	INTRINSICALLY SAFE RELAY
J,JB	JUNCTION BOX
K	KEY INTERLOCK
KA	KILOAMPERES
KCM	THOUSAND CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
KWH	KILOWATT HOURS
KWHD	KILOWATT HOURS DEMAND
L	LIGHTING CONTACTOR, LOW SPEED, LOWER
LC	LIGHTING CONTROLLER, LATCH COIL
LE	LEVEL ELEMENT
LIT	LEVEL INDICATING TRANSMITTER
LOR	LOCAL-OFF-REMOTE
LP	LOCAL , LIGHTING PANEL
LPS	LOW PRESSURE SODIUM
LR	LOCAL/REMOTE
LS	LIMIT SWITCH, LEVEL SWITCH
LT	LEVEL TRANSMITTER
LT FLEX	LIQUID-TIGHT FLEX CONDUIT
M	MAGNETIC CONTACTOR COIL, MOTOR, MANUAL
MA	MILLIAMPERE
MAN	MANUAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MDC	MOTORIZED DAMPER CONTROL
MECH	MECHANICAL
MERC	MERCURY VAPOR
MFR	MANUFACTURER
MH	MANHOLE, METAL HALIDE, MOUNTING HEIGHT
MIN	MINIMUM
MO	MOTOR OPERATOR
MOP	MOTOR OPERATED POTENTIOMETER
MPR	MOTOR PROTECTION RELAY
MRCT	MULTI RATIO CURRENT TRANSFORMER
MS	MOTOR STARTER
MSC	MANUFACTURER SUPPLIED CABLE
MT	MOUNT
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL, NORMAL
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE

ABBREVIATION	DESCRIPTION
O	OPEN
OCA	OPEN-CLOSE-AUTO
OCB	OIL CIRCUIT BREAKER
OCR	OVERCURRENT RELAY
OHM	OHMMETER
OL	OVERLOAD RELAY
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
OS	OCCUPANCY SENSOR
PB	PULL BOX
PC	PHOTOCELL
PCC	POINT OF COMMOM COUPLING
PCB	POWER CIRCUIT BREAKER
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMP	PUMP
POT	POTENTIOMETER
PP	POWER PACK
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
R	RELAY,REVERSE,RUN,RAISE
RCPT	RECEPTACLE
REF	REFERENCE
REM	REMOTE
RGS	RIGID GALVANIZED STEEL CONDUIT
RMS	ROOT MEAN SQUARE
RTU	REMOTE TELEMETRY UNIT
RTD	RESISTANCE TEMPERATURE DETECTOR
RVNR	REDUCED VOLTAGE NON-REVERSING
RVR	REDUCED VOLTAGE REVERSING
SA	SURGE ARRESTER
SC	SPEED CONTROL
SCU	SPEED CONTROL UNIT
SF	SUPPLY FAN
SL	STOP LOG
S/N	SOLID NEUTRAL
SOL	SOLENOID
SPD	SPEED
SS	START STOP
SST	STAINLESS STEEL
ST	SHUNT TRIP
SUB	SUBSTATION
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYMM	SYMMETRICAL
T	THERMOSTAT, TRANSFORMER
TB	TERMINAL BOARD, TEST BLOCK
TD	TEMPERATURE DETECTOR, TIME DELAY
TDC	TIME-DELAY CLOSING
TDO	TIME-DELAY OPENING
TDR	TIME DELAY RELAY
TEL	TELEPHONE
TEMP	TEMPERATURE
TJB	TERMINAL JUNCTION BOX
TSP	TWISTED SHIELDED PAIR
TST	TWISTED SHIELDED TRIAD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UC	UNLATCH COIL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UVR	UNDER VOLTAGE RELAY
V	VOLTAGE, VOLTS
VCB	VACUUM CIRCUIT BREAKER
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION
VM	VOLTMETER
VR	VOLTAGE REGULATOR
VS	VOLTMETER SWITCH
W	WATTS
WHD	WATT HOUR DEMAND METER
WM	WATTMETER
WP	WEATHERPROOF
XD	TRANSDUCER
XFMR	TRANSFORMER
XPDR	TRANSPONDER
ZS	POSITION SWITCH

PROFESSIONAL ENGINEER REGISTERED 11623 STATE OF IDAHO TOBY PALIN
12/15/2014

NO.	DATE	DSGN	DR	CHK	BY	REVISION
		T PALIN	K BARTLETT	M MACROSTIE	APVD	APVD
						G THOMPSON

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
ELECTRICAL LEGEND - 1

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-017
SHEET	13 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-0000-GEN-G-017.dgn PLOT DATE: 12/10/2014 PLOT TIME: 12:54:22 PM

POWER SYSTEM PLAN - 1

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED. RACEWAY, CONDUCTOR,TERMINATION AND CONNECTION IN THIS DIVISION.
MCC-A	MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.
	PANELBOARD - SURFACE MOUNTED
LPA	PANELBOARD LETTER
	LP - LIGHTING PANEL DP - DISTRIBUTION PANEL
	PANELBOARD - FLUSH MOUNTED
	TERMINAL JUNCTION BOX
M	MOTOR, SQUIRREL CAGE INDUCTION
G	GENERATOR, VOLTAGE AND SIZE AS INDICATED.
LPA-2	HOME RUN - DESTINATION SHOWN
or G	EXPOSED CONDUIT AND CONDUCTORS*
or G	CONCEALED CONDUIT AND CONDUCTORS*

NOTE:
ALL UNMARKED CONDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND CONDUCTORS IN 3/4" CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF NO. 12 CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE.

G	CROSSHATCHES WITH BAR INDICATE NO.10 CONDUCTOR. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.
[P3]	CONDUCTOR AND RACEWAY CALLOUT - FOR CONDUIT AND CONDUCTORS, SEE CIRCUIT SCHEDULE.
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED AS SHOWN
	CONDUIT TERMINATION AT CABLE TRAY
	CONDUIT ROUTING AREA
	CABLE TRAY
CE	CONCRETE ENCASED DUCTBANK
J or HH	GENERAL CONTROL OR WIRING DEVICE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE.
CS	CONTROL STATION, SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED.
30	NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE
60/40 F	FUSED DISCONNECT SWITCH, SIZE INDICATED (60/40, 60 = SWITCH RATING; 40 = FUSE RATING) 3 POLE
2	COMBINATION CIRCUIT BREAKER AND INDICATED) MAGNETIC STARTER, NEMA SIZE INDICATED
D	RJ45 DATA RECEPTACLE
P	RJ11 PHONE RECEPTACLE
S C	ACCESS CONTROL CARD READER (+42" AFF)

POWER SYSTEM PLAN - 1

SYMBOL	DESCRIPTION
100/40 B	BREAKER, SEPARATELY MOUNTED, SIZE INDICATED (100/40, 100 = FRAME SIZE; 40 = TRIP RATING) 3 POLE
2	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED
L 30	LIGHTING CONTACTOR, SIZE INDICATED
2	STARTER, MAGNETIC NEMA SIZE INDICATED
	CONVENIENCE RECEPTACLE - DUPLEX UNLESS NOTED OTHERWISE WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK CRE - CORROSION RESISTANT SUBSCRIPT NUMBER AT RECEPTACLE INDICATES CIRCUIT
	240V RECEPTACLE
	CONVENIENCE RECEPTACLE - QUADRUPLEX
	MULTI OUTLET ASSEMBLY
	DUPLEX CONVENIENCE RECEPTACLE - FLUSH IN FLOOR
	CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE
L20R 20	RECEPTACLE, SPECIAL PURPOSE - NEMA CONFIGURATION AND AMPERAGE INDICATED
T	THERMOSTAT
	METERING FACILITY
EUH	ELECTRIC UNIT HEATER
AC	ELECTRIC AIR CONDITIONER (SELF CONTAINED UNIT)
1	LUMINAIRE, SEE LUMINAIRE SCHEDULE
2	LUMINAIRE, SEE LUMINAIRE SCHEDULE
3 E/NL	LUMINAIRE WITH INTEGRAL EMERGENCY LIGHTING UNIT AND IS UNSWITCHED
4	LUMINAIRE AND POLE, SEE LUMINAIRE SCHEDULE
5	WALL MOUNTED LUMINAIRE, SEE LUMINAIRE SCHEDULE
6	EMERGENCY LIGHTING UNIT
7	EXIT LIGHT, SEE LUMINAIRE SCHEDULE
a or 1 1-2a	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER AT LUMINAIRE INDICATES PANELBOARD AND CIRCUIT.
PC	PHOTOCELL

$ SWITCH:

MOTOR SWITCH:
- M- MOTOR RATED TOGGLE SWITCH WITHOUT OVERLOADS
- MS- MANUAL MOTOR STARTER WITH OVERLOADS

WALL SWITCH:
- 2- DOUBLE POLE
- 3- THREE WAY
- 4- FOUR WAY
- CRE- CORROSION RESISTANT
- D- DIMMER
- EP- EXPLOSION PROOF
- K- KEY OPERATED
- P- PILOT LIGHT
- WP- WEATHERPROOF
- OOA- ON/OFF/AUTO

CIRCUIT AND RACEWAY

GENERAL CIRCUIT CONDUCTOR AND CONDUIT IDENTIFICATION

POWER CIRCUIT CALLOUTS			
[P1]	[1/2"FLEX, 2#12,#12G]	[P24]	[1"C,3#8,3#14,1#10G]
[P2]	[3/4"C,2#12,1#12G]	[P25]	[1"C,3#8,4#14,1#10G]
[P3]	[3/4"C,3#12,1#12G]	[P26]	[1"C,3#8,5#14,1#10G]
[P4]	[3/4"C,4#12,1#12G]	[P27]	[1"C,2#6, 1#10G]
[P5]	[3/4"C,5#12,1#12G]	[P28]	[1"C,3#6, 1#8G]
[P6]	[3/4"C,6#12,1#12G]	[P29]	[1"C,3#6, 2#14,1#8G]
[P7]	[3/4"C,7#12,1#12G]	[P30]	[1"C,3#6, 3#14,1#8G]
[P8]	[3/4"C,8#12,1#12G]	[P31]	[1"C,3#6, 4#14,1#8G]
[P9]	[3/4"C,3#12,2#14,1#12G]	[P32]	[1"C,3#6, 5#14,1#8G]
[P10]	[3/4"C,3#12,3#14,1#12G]	[P33]	[1"C,3#4,1#8G]
[P11]	[3/4"C,3#12,4#14,1#12G]	[P34]	[1 1/4"C,3#4,3#14,1#8G]
[P12]	[3/4"C,3#12,5#14,1#12G]	[P35]	[1 1/4"C,3#4,5#14,1#8G]
[P13]	[3/4"C,3#12,6#14,1#12G]	[P36]	[1 1/4"C,3#3, 1#6G]
[P14]	[3/4"C,3#12,7#14,1#12G]	[P37]	[1 1/4"C,3#3, 3#14,1#6G]
[P15]	[3/4"C,2#10,1#10G]	[P38]	[1 1/4"C,3#2,1#6N,1#6G]
[P16]	[3/4"C,3#10,1#10G]	[P39]	[1 1/4"C,3#1, 1#6G]
[P17]	[3/4"C,3#10,2#14,1#10G]	[P40]	[1 1/2"C,3#1, 3#14,1#6G]
[P18]	[3/4"C,3#10,3#14,1#10G]	[P41]	[1 1/2"C,3#2/0, 1#4G]
[P19]	[3/4"C,3#10,4#14,1#10G]	[P42]	[2"C,3#3/0, 1#4G]
[P20]	[3/4"C,3#10,5#14,1#10G]	[P43]	[2"C,3#4/0, 1#3G]
[P21]	[1"C,2#8,1#10G]	[P44]	[4"C,3#350,1#4G]
[P22]	[1"C,3#8,1#8G]		
[P23]	[1"C,3#8,2#14,1#10G]		

ANALOG CIRCUIT CALLOUTS	
[A1]	[3/4"C,1 TYPE 3]
[A2]	[1"C,2 TYPE 3]
[A3]	[1"C,3 TYPE 3]
[A4]	[1"C,4 TYPE 3]
[A5]	[1 1/4"C,5 TYPE 3]
[A6]	[1 1/4"C,6 TYPE 3]
[A7]	[1 1/2"C,7 TYPE 3]
[A8]	[1 1/2"C,8 TYPE 3]
[A9]	[1 1/2"C,9 TYPE 3]
[A10]	[2"C,10 TYPE 3]
[A11]	[2"C,11 TYPE 3]
[A12]	[2"C,12 TYPE 3]
[A13]	[2"C,13 TYPE 3]
[A14]	[2"C,14 TYPE 3]
[A15]	[3/4"C,1 TYPE 4]
[A16]	[3/4"C,2 TYPE 4]
[A17]	[1"C,3 TYPE 4]
[A18]	[1 1/4"C,4 TYPE 4]
[A19]	[1 1/4"C,5 TYPE 4]
[A20]	[1 1/4"C,6 TYPE 4]
[A21]	[1 1/2"C,7 TYPE 4]
[A22]	[1 1/2"C,8 TYPE 4]
[A23]	[2"C,9 TYPE 4]

CONTROL CIRCUIT CALLOUTS	
[C1]	[3/4"C,MSC]
[C2]	[3/4"C,2#14,1#14G]
[C3]	[3/4"C,3#14,1#14G]
[C4]	[3/4"C,4#14,1#14G]
[C5]	[3/4"C,5#14,1#14G]
[C6]	[3/4"C,6#14,1#14G]
[C7]	[3/4"C,7#14,1#14G]
[C8]	[3/4"C,8#14,1#14G]
[C9]	[3/4"C,9#14,1#14G]
[C10]	[3/4"C,10#14,1#14G]
[C11]	[3/4"C,11#14,1#14G]
[C12]	[3/4"C,12#14,1#14G]
[C13]	[3/4"C,13#14,1#14G]
[C14]	[3/4"C,14#14,1#14G]
[C15]	[3/4"C,15#14,1#14G]
[C16]	[3/4"C,16#14,1#14G]
[C17]	[3/4"C,17#14,1#14G]
[C18]	[3/4"C,18#14,1#14G]
[C19]	[3/4"C,19#14,1#14G]
[C20]	[1"C,20#14,1#14G]
[C21]	[1"C,21#14,1#14G]
[C22]	[1"C,22#14,1#14G]
[C23]	[1"C,23#14,1#14G]
[C24]	[1"C,24#14,1#14G]
[C25]	[1"C,25#14,1#14G]
[C30]	[2"C,30#14,1#14G]

MULTICONDUCTOR POWER CABLE CIRCUIT CALLOUTS	
[PC1]	[3/4"C,1 (3C#12,1#12G) TYPE 2]
[PC2]	[3/4"C,1 (3C#10,1#10G) TYPE 2]
[PC3]	[1"C,1 (3C#8,1#10G) TYPE 2]
[PC4]	[1 1/4"C,2 (3C#12,1#12G) TYPE 2]
[PC5]	[1 1/2"C,2 (3C#10,1#10G) TYPE 2]
[PC1A]	[3/4"C,1 (2C#12,1#12G) TYPE 2]
[PC2A]	[3/4"C,1 (2C#10,1#10G) TYPE 2]

EMPTY CONDUIT	
[EC-1]	[3/4"C,WITH PULL STRING]
[EC-2]	[1"C,WITH PULL STRING]
[EC-3]	[1 1/4"C,WITH PULL STRING]
[EC-4]	[1 1/2"C,WITH PULL STRING]
[EC-5]	[2"C,WITH PULL STRING]
[EC-6]	[3"C,WITH PULL STRING]
[EC-7]	[4"C,WITH PULL STRING]
[EC-8]	[5"C,WITH PULL STRING]

MULTICONDUCTOR CONTROL CABLE CIRCUIT CALLOUTS	
[CC5]	[3/4"C,1-5C TYPE 1]
[CC7]	[3/4"C,1-7C TYPE 1]
[CC9]	[1"C,1-9C TYPE 1]
[CC12]	[1"C,1-12C TYPE 1]
[CC19]	[1 1/2"C, 1-19C TYPE 1]
[CC25]	[1 1/2"C,1-25C TYPE 1]
[CC37]	[2"C,1-37C TYPE 1]
[CCC1]	[1-7C #12 TYPE 1]

NETWORK CIRCUITS	
[F1]	[2"C - 1 TYPE SMFOC]
[F2]	[2"C - 2 TYPE SMFOC]
[N1]	[3/4"C - 1 TYPE 30]
[N2]	[2"C - 2 TYPE 30]
[N3]	[5"C - 5 ID]
[N4]	[5"C - 5 ID, 24 FIBER SMFOC], NOTE 7
[N5]	[5"C - 5 ID, (2) 24 FIBER SMFOC], NOTE 8

NOTES:
1. FOR CABLE TYPES, SEE SPECIFICATIONS.
2. CONDUIT SIZES ARE BASE ON THE AREA OF THW CONDUCTORS.
3. SIZING OF CONDUCTORS #1AWG AND SMALLER BASED ON AMPACITIES AT 60 DEGREES C, SIZING OF CONDUCTORS #1/0AWG AND LARGER BASED ON AMPACITIES AT 75 DEGREES C.
4. WHERE CIRCUITS ARE UNDERGROUND, DIRECT BURIED OR CONCRETE ENCASED, MINIMUM CONDUIT SIZE SHALL BE 1".
5. FOR METRIC CONDUIT SIZES USE THE FOLLOWING CONVERSION:
   1/2" = 16 mm 1/4" = 35 mm
   3/4" = 21 mm 1 1/2" = 41 mm
   1" = 27 mm 2" = 53 mm
6. ID = INNERDUCT
   SMFOC = SINGLE MODE FIBER OPTIC CABLE
7. (4) SPARE INNERDUCT, (1) INNERDUCT WITH 24 FIBER SMFOC.
8. (3) SPARE INNERDUCT, (2) INNERDUCT WITH (2) 24 FIBER SMFOC.

PROFESSIONAL ENGINEER REGISTERED 11623 STATE OF IDAHO TOBY PALIN
12/15/2014

NO.	DATE	DSGN	REVISION	CHK	DR
				APVD	BY

T PALIN | K BARTLETT | M MACROSTIE | APVD | G THOMPSON

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
ELECTRICAL LEGEND - 2

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-018
SHEET	14 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-0003.dgn 010-G-018.dgn PLOT DATE: 12/10/2014 PLOT TIME: 12:54:21 PM

Mass Balance for 2032 Winter Maximum Month Loading Condition

Constituent	Raw Wastewater (RW)	Main Recycled Stream (Recycle)	Main Combined Recycle Effluent (RecyE)	Main Primary Influent (PI)	Main Primary Effluent (PE)	TF Bypass Splitter Influent (SplitI)	TF Bypass Splitter Effluent (directly to AB Inf)	TrickFt Trickling Filter Influent (TFI)	TrickFt Trickling Filter Effluent (TFE)	AB Inf Combined Discharge	GBT WAS Thickening Recycle (TWASR)	RDT Recycle Influent (RecyI)	RDT Recycled Stream (Recycle)	RDT Combined Recycle Effluent (RecyE)	Main Bioreactor Influent (BI)	Main Secondary Clarifier Influent (SI)	Plant Effluent (PLE)
Flow (gallons/day)	18,000,000	627,092	18,627,098	18,627,098	18,540,561	18,540,561	13,905,421	4,635,140	4,140,759	18,046,180	431,079	18,046,180	431,079	18,477,255	18,477,255	27,715,882	18,012,744
Carbonaceous BOD_5 (lbs/day)	60,000	4,136	64,136	64,136	40,832	40,832	30,624	10,208	1,767	32,391	248	32,391	248	32,639	32,639	257,520	539
COD (lbs/day)	131,833	10,870	142,703	142,703	88,760	88,760	66,570	22,190	8,955	75,526	684	75,526	684	76,210	76,210	626,440	5,247
TSS (lbs/day)	46,650	5,841	52,491	52,491	23,621	23,621	17,716	5,905	1,417	19,132	577	19,132	577	19,709	19,709	603,348	1,048
VSS (lbs/day)	40,586	5,005	45,590	45,590	20,575	20,575	15,431	5,144	1,249	16,680	404	16,680	404	17,084	17,084	422,739	734
TKN (lbs/day)	7,000	1,599	8,599	8,599	7,369	7,369	5,527	1,842	1,488	7,015	36	7,015	36	7,051	7,051	31,871	333
NH_3-N (lbs-N/day)	4,146	1,315	5,461	5,461	5,436	5,436	4,077	1,359	1,258	5,334	0	5,334	0	5,335	5,335	23	15
NO_2-N (lbs-N/day)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (lbs-N/day)	0	0	0	0	0	0	0	0	-1	-1	62	-1	62	61	61	4,324	2,811
Total Nitrogen (lbs-N/day)	7,000	1,599	8,599	8,599	7,369	7,369	5,527	1,842	1,487	7,014	98	7,014	98	7,112	7,112	36,195	3,144
TP (lbs-P/day)	1,397	959	2,356	2,356	1,962	1,962	1,471	490	383	1,854	37	1,854	37	1,891	1,891	36,814	139
Alkalinity (lbs/day as $CaCO_3$)	54,076	7,974	62,049	62,049	61,761	61,761	46,321	15,440	13,797	60,118	849	60,118	849	60,967	60,967	59,334	38,561
H_2S (lbs/day)	901	55	957	957	0	0	0	0	0	0	0	0	0	0	0	0	0
Temperature (°C)	14	19	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
BOD_5 (mg/L)	399	790	413	413	264	264	264	264	51	215	69	215	69	212	212	1,113	4
COD (mg/L)	878	2,077	918	918	574	574	574	574	259	501	190	501	190	494	494	2,708	35
TSS (mg/L)	311	1,116	338	338	153	153	153	153	41	127	160	127	160	128	128	2,608	7
VSS (mg/L)	270	956	293	293	133	133	133	133	36	111	112	111	112	111	111	1,828	5
TKN (mg-N/L)	47	306	55	55	48	48	48	48	43	47	10	47	10	46	46	138	2
NH_3-N (mg-N/L)	28	251	35	35	35	35	35	35	36	35	0	35	0	35	35	0	0
NO_2-N (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (mg-N/L)	0	0	0	0	0	0	0	0	0	0	17	0	17	0	0	19	19
Total Nitrogen (mg/L)	47	306	55	55	48	48	48	48	43	47	27	47	27	46	46	156	21
TP (mg-P/L)	9	183	15	15	13	13	13	13	11	12	10	12	10	12	12	159	0.92
Alkalinity (mg/L as $CaCO_3$)	360	1,524	399	399	399	399	399	399	399	399	236	399	236	395	395	257	257
H_2S (mg/L)	6	11	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0

PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ARANGO	M RARDIN	G THOMPSON	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
MAXIMUM MONTHLY MASS BALANCE - 1

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-019
SHEET	15 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-019.dgn PLOT DATE: 2014\12\05 PLOT TIME: 10:18:21 AM

Mass Balance for2032 Winter Maximum Month Loading Conditions, Continued

Constituent	Main Primary Sludge (PSD)	Main WAS	GBT WAS Thickener Influent (TWASI)	GBT Thickened WAS (TWAS)	Sludge Combined Discharge	Meso Anaerobic Digester Influent (AnDI)	Meso Anaerobic Digester Effluent (AnDE)	Final Metal Addition Influent (MetalInf)	Final Metal Addition Effluent (MetalEff)	BFP Dewatering Influent (DWI)	BFP Dewatered Sludge (DWE)	Biosolids to Disposal	TrickFt WAS	BFP Dewatering Recycle (DWR)	Recy Combined Discharge
Flow (gallons/day)	86,536	464,511	464,511	67,717	154,254	154,254	154,254	154,254	154,254	154,254	21,543	21,543	494,381	132,711	627,092
Carbonaceous BOD_5 (lbs/day)	23,258	12,302	12,302	12,054	35,313	35,313	6,331	6,331	6,331	6,331	6,061	6,061	3,866	270	4,136
COD (lbs/day)	53,942	29,738	29,738	29,053	82,996	82,996	37,328	37,328	37,328	37,328	35,532	35,532	9,074	1,796	10,870
TSS (lbs/day)	28,888	28,833	28,833	28,257	57,144	57,144	33,259	33,259	33,022	33,022	32,361	32,361	5,180	660	5,841
VSS (lbs/day)	25,015	20,202	20,202	19,798	44,814	44,814	21,886	21,886	21,886	21,886	21,449	21,449	4,567	438	5,005
TKN (lbs/day)	1,230	1,510	1,510	1,474	2,703	2,703	2,709	2,709	2,709	2,709	1,465	1,465	355	1,244	1,599
NH_3-N (lbs-N/day)	25	0	0	0	25	25	1,354	1,354	1,354	1,354	189	189	150	1,165	1,315
NO_2-N (lbs-N/day)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (lbs-N/day)	0	72	72	11	11	11	0	0	0	0	0	0	0	0	0
Total Nitrogen (lbs-N/day)	1,230	1,582	1,582	1,484	2,714	2,714	2,709	2,709	2,709	2,709	1,465	1,465	355	1,244	1,599
TP (lbs-P/day)	395	1,756	1,756	1,719	2,114	2,114	2,115	2,115	2,115	2,115	1,264	1,264	107	852	959
Alkalinity (lbs/day as $CaCO_3$)	288	994	994	145	433	433	7,353	7,353	7,353	7,353	1,027	1,027	1,647	6,326	7,974
H_2S (lbs/day)	0	0	0	0	0	0	64	64	64	64	9	9	0	55	55
Temperature (oC)	14	14	14	14	14	14	35	35	35	35	35	35	14	35	19
BOD_5 (mg/L)	32,205	3,173	3,173	21,330	27,431	27,431	4,918	4,918	4,918	4,918	33,715	33,715	937	243	790
COD (mg/L)	74,693	7,671	7,671	51,410	64,472	64,472	28,997	28,997	28,997	28,997	197,637	197,637	2,199	1,621	2,077
TSS (mg/L)	40,000	7,438	7,438	50,000	44,390	44,390	25,836	25,836	25,651	25,651	180,000	180,000	1,256	596	1,116
VSS (mg/L)	34,638	5,211	5,211	35,033	34,811	34,811	17,001	17,001	17,001	17,001	119,302	119,302	1,107	395	956
TKN (mg-N/L)	1,703	389	389	2,607	2,100	2,100	2,104	2,104	2,104	2,104	8,149	8,149	86	1,123	306
NH_3-N (mg-N/L)	35	0	0	0	20	20	1,052	1,052	1,052	1,052	1,052	1,052	36	1,052	251
NO_2-N (mg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO_3-N (mg-N/L)	0	19	19	19	8	8	0	0	0	0	0	0	0	0	0
Total Nitrogen (mg/L)	1,703	408	408	2,626	2,108	2,108	2,104	2,104	2,104	2,104	8,149	8,149	86	1,123	306
TP (mg-P/L)	546	453	453	3,042	1,642	1,642	1,643	1,643	1,643	1,643	7,030	7,030	26	769	183
Alkalinity (mg/L as $CaCO_3$)	399	257	257	257	337	337	5,712	5,712	5,712	5,712	5,712	5,712	399	5,712	1,524
H_2S (mg/L)	0	0	0	0	0	0	50	50	50	50	50	50	0	50	11

1. WASTEWATER TREATMENT FACILITY MASS BALANCE AND ASSOCIATED TREATMENT PERFORMANCE IS ESTIMATED THROUGH THE USE OF A PROCESS SIMULATOR. ACTUAL TREATMENT FACILITY PERFORMANCE IS DEPENDENT ON A NUMBER OF VARIABLE INCLUDING WASTEWATER INFLUENT CONDITIONS, CHARACTERISTICS, AND OPERATIONAL PARAMETERS. THE MASS BALANCE AND PERFORMANCE IS TO BE USED FOR PLANNING AND DESIGN PURPOSES ONLY.

PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO. | DATE | DSGN | DR | CHK | APVD | BY | REVISION
A ARANGO | M RARDIN | G THOMPSON | APVD | G THOMPSON

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
MAXIMUM MONTHLY MASS BALANCE - 2

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-020
SHEET	16 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-020.dgn PLOT DATE: 2014\12\05 PLOT TIME: 10:20:15 AM

Design Summary Data
Nampa Liquid Stream

INFLUENT FLOWS AND LOADS	DESIGN VALUES
FLOWS, MGD	
AVERAGE ANNUAL	15.34
AVERAGE DAY MAXIMUM MONTH	18.00
PEAK DAY	20.00
BOD LOADINGS, LBS/DAY	
AVERAGE ANNUAL	50,377
AVERAGE DAY MAXIMUM MONTH	60,000
MAXIMUM WEEK	68,255
TSS LOADINGS, LBS/DAY	
AVERAGE ANNUAL	39,166
AVERAGE DAY MAXIMUM MONTH	46,650
MAXIMUM WEEK	55,000
TKN LOADINGS, LBS/DAY	
AVERAGE ANNUAL	6,272
AVERAGE DAY MAXIMUM MONTH	6,980
MAXIMUM WEEK	8,558
AMMONIA LOADINGS, LBS/DAY	
AVERAGE ANNUAL	3,674
AVERAGE DAY MAXIMUM MONTH	4,146
MAXIMUM WEEK	4,840
TOTAL PHOSPHORUS LOADINGS, LBS/DAY	
AVERAGE ANNUAL	1,279
AVERAGE DAY MAXIMUM MONTH	1,397
MAXIMUM WEEK	1,561
EFFLUENT REQUIREMENT	
EFFLUENT DISCHARGE	
BOD5, MONTHLY AVERAGE (MG/L)	30
BOD5, MONTHLY AVERAGE (LB/DAY)	4,504
BOD5, WEEKLY AVERAGE (MG/L)	45
BOD5, WEEKLY AVERAGE (LB/DAY)	6,755
TSS, MONTHLY AVERAGE (MG/L)	20
TSS, MONTHLY AVERAGE (LB/DAY)	2,942
TSS, WEEKLY AVERAGE (MG/L)	29
TSS, WEEKLY AVERAGE (LB/DAY)	4,413
AMMONIA (MG/L)	0.8
AMMONIA (LB/DAY)	78.5
AMMONIA DAILY MAXIMUM (MG/L)	1.8
AMMONIA DAILY MAXIMUM (LB/DAY)	176.5
pH	6.5 - 9.0
TP INTERIM (MG/L) [1]	0.5
TP INTERIM (LB/DAY)	75
E. COLI, GEO MEAN (ORG. PER 100 ML)	126
E. COLI, MAX (ORG. PER 100 ML)	576

NOTES:

1. MAY 1 - SEPTEMBER 30
2. FUTURE EXPECTED TP LIMIT OF 70 µG/L (10.5 lb/day)

LIQUIDS UNIT PROCESS CRITERIA	DESIGN VALUES
PRIMARY EFFLUENT PUMP STATION (PEPS)	
UNITS	2 DUTY, 1 STANDBY
TYPE	VERTICAL TURBINE SOLIDS HANDLING (VTSH)
CAPACITY (EACH), GPM @ FT TDH	9,450 @ 30
POWER (EACH), HP	100
AERATION BASINS	
UNITS	2 EXISTING, 1 NEW
VOLUME, EA, GAL	3,304,000
LENGTH X WIDTH (EACH),	134 x 160
AVG SIDEWATER DEPTH, FT	21
SELECTOR ZONE VOLUME, EA	660,800
AEROBIC (NON FAZ) VOLUME, EA	2,643,200
FAZ VOLUME, GAL	429,520
DESIGN SRT, DAYS	7 to 11
DESIGN MLSS, MG/L	1,500 - 4000
TEMPERATURE	
WINTER	14 C
SUMMER	21 C
AERATION BASIN DIFFUSERS	
FAZ, TYPE	MEMBRANE
AEROBIC (NON FAZ), TYPE	CERAMIC
ANOXIC ZONE MIXERS	
TYPE	SUBMERSIBLE
DRIVE TYPE	CONSTANT
SELECTOR	
NUMBER / POWER	2, 12.2 HP EACH BASIN
FAZ	
NUMBER / POWER	1, 17.9 HP EACH BASIN
AERATION BLOWERS	
LOCATION	EXISTING BLOWER BUILDING
UNITS	5 EXISTING
TYPE	MULTISTAGE CENTRIFUGAL
CAPACITY (EA), SCFM @ PSIG	500 HP - 6,250 scfm @ 10.6 psig
FIRM, INSTALLED CAPACITY, SCFM	25,000 / 31,250
AERATION BASIN 3 UNDER DRAIN PUMPING SYSTEM	
UNITS	1 DUTY, 1 STANDBY
TYPE	SUBMERSIBLE PUMP
CAPACITY (EACH), GPM @ FT TDH	600 @ 20
POWER (EACH), HP	11.3

PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ARANGO	M RARDIN	B RABINOWITZ	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

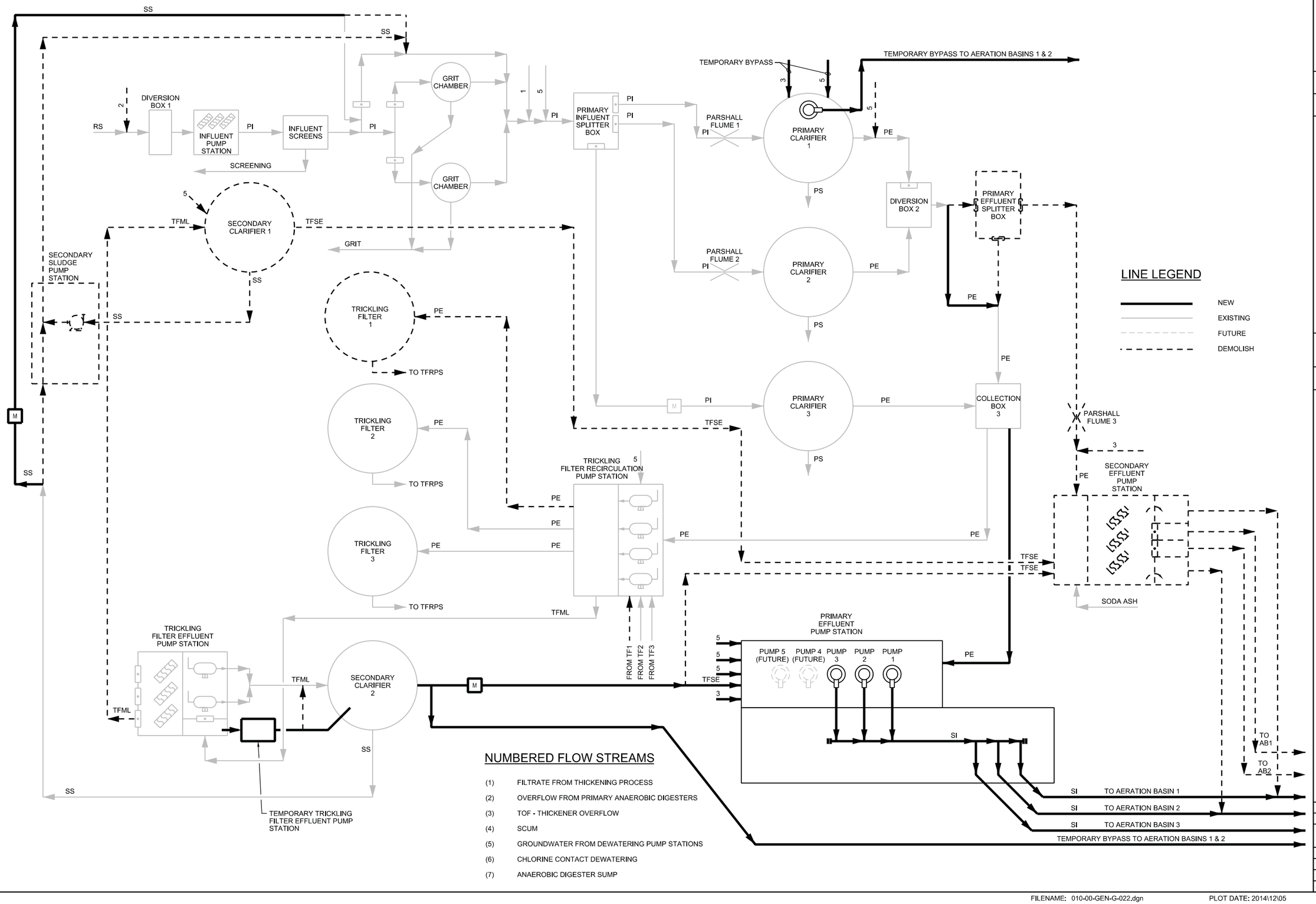
GENERAL
DESIGN SUMMARY DATA

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-021
SHEET	17 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-021.dgn PLOT DATE: 2014\12\11 PLOT TIME: 6:51:59 AM



PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	REVISION	CHK	APVD	BY	APVD
		A ARANGO	M RARDIN	DR	L FETTKETHER		G THOMPSON

CH2MHILL®

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

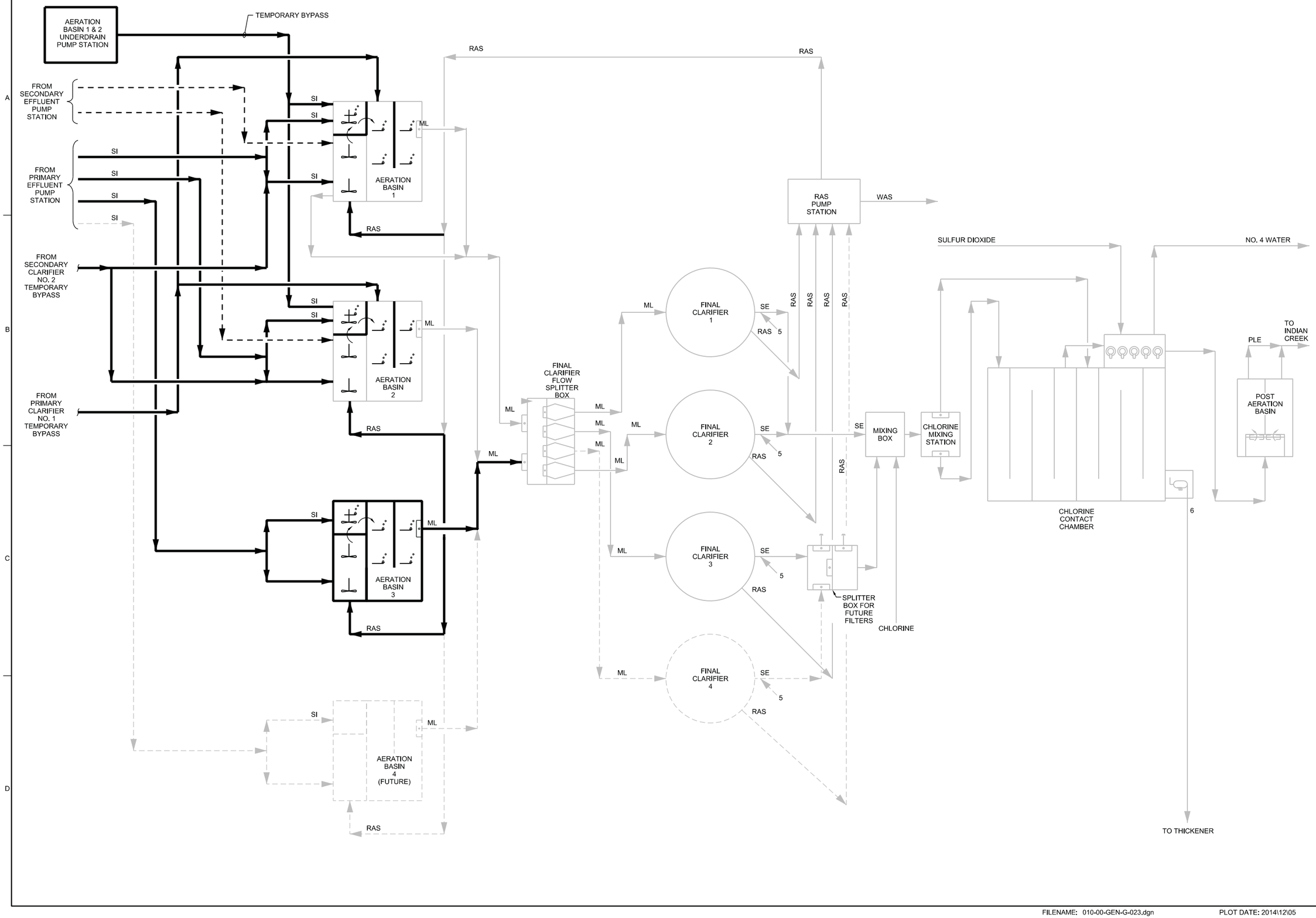
GENERAL
LIQUIDS PROCESS FLOW DIAGRAM - 1

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-022
SHEET	18 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-022.dgn PLOT DATE: 2014\12\05 PLOT TIME: 11:29:05 AM



PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		A ARANGO	M RARDIN	L FETTKETHER	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

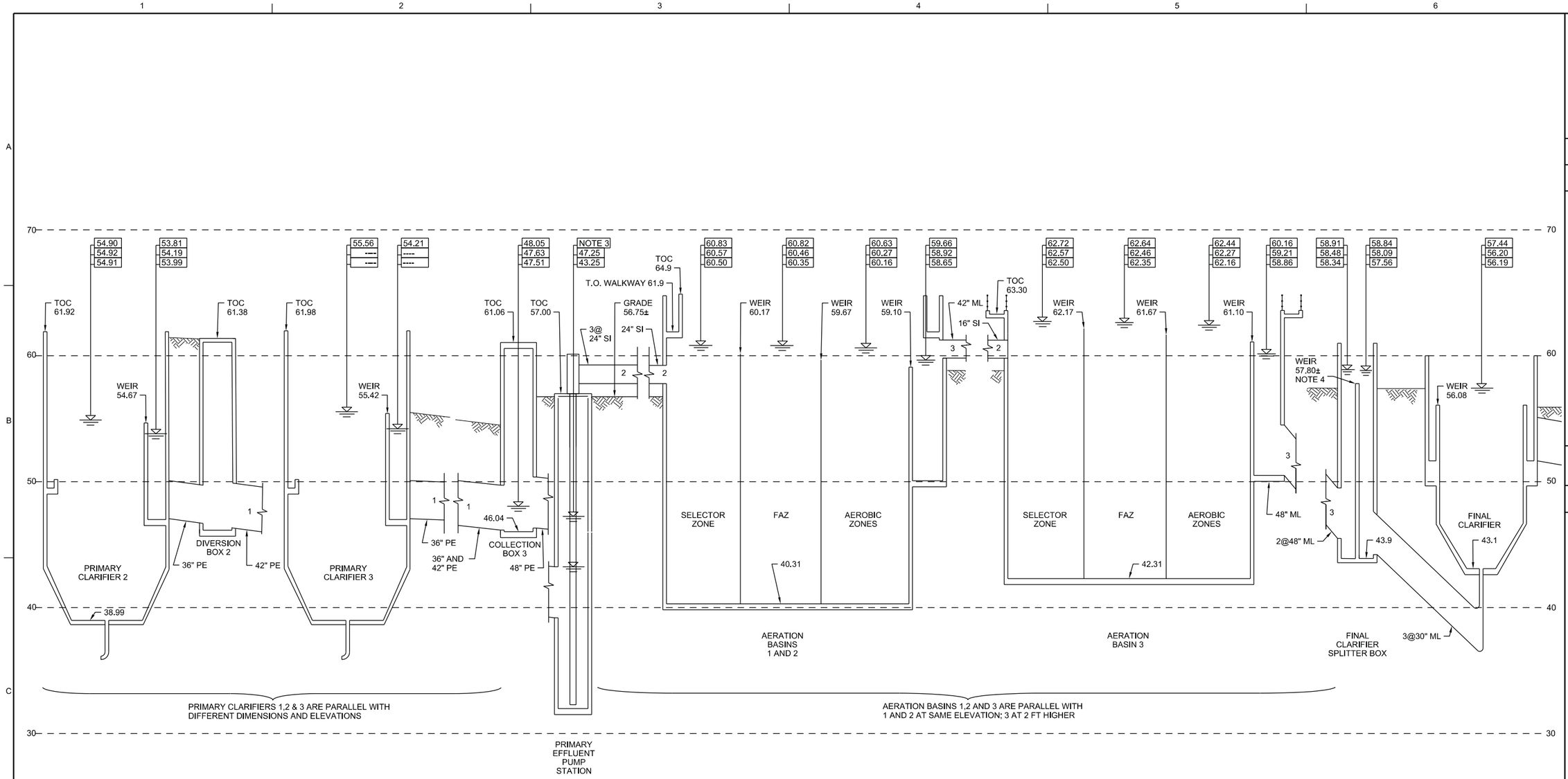
GENERAL
LIQUIDS PROCESS FLOW DIAGRAM - 2

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-023
SHEET	19 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-023.dgn PLOT DATE: 2014\12\05 PLOT TIME: 11:29:22 AM



LEGEND:

WATER SURFACE ELEVATION SHOWN IS PEAK HOUR

XX.XX — PEAK HOUR
XX.XX — MAX MONTH
XX.XX — AVERAGE ANNUAL

HYDRAULIC PROFILE

NTS

SCENARIO	PLANT FLOW (MGD)	RAS FLOW (MGD)	STORMWATER/ UNDERDRAIN FLOW	NUMBER OF UNITS IN SERVICE		
				PRIMARY CLARIFIERS	AERATION BASINS	FINAL CLARIFIERS
PHASE 1 PEAK HR	26	18	3	2 OF 3	2 OF 3	3 OF 3
PHASE 1 MAX. MO	18	18	0	1 OF 3	2 OF 3	2 OF 3
PHASE 1 AVG. ANNUAL	15.3	15.3	0	1 OF 3	2 OF 3	2 OF 3

GENERAL NOTES:

1. THE UNDERDRAIN FLOW FROM THE AERATION BASINS AND PRIMARY DIGESTER 2 IS ROUTED TO THE PRIMARY EFFLUENT PUMP STATION (PEPS). STORMWATER CURRENTLY ROUTED TO THE SECONDARY EFFLUENT PUMP STATION WILL BE RE-ROUTED TO PEPS.
2. HYDRAULIC PROFILE BASED ON 100 YEAR RIVER ELEVATION OF 2451.40 WITH NO MODIFICATIONS TO PROCESSES DOWNSTREAM OF FINAL CLARIFIER. ALL ELEVATIONS ARE 2400+
3. UPPER AND LOWER LIMITS OF PEPS OPERATING RANGE SHOWN. UPSTREAM WATER SURFACE BASED ON UPPER LIMITS. LIMIT OF PEPS CONTROL.
4. WEIRS VARY IN ELEVATION FOR FLOW SPLIT TO EACH FINAL CLARIFIER.

PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		J CHANG	J PIGMAN	L FETTKETHER	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
HYDRAULIC PROFILE

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-024
SHEET	20 of 157

BID DOCUMENTS

Piping Schedule

Service	Legend	Size(s) (In.)	Exposure	Piping Material	Specification Section	Joint Type	Coating	Test Pressure and Type (psig, x), x = Type indicated in Legend	Pipe Color	Remarks
Air, High Pressure	AHP	ALL	ALL	COP	40 27 00.13	SL	None	160, P		
Air, Low Pressure	ALP		BUR, > 24	STL	40 27 00.04	W	Sys #8	30, P	Gray	
			BUR, =< 24	STL	41 27 00.03	FLG, W	Sys #8			
			EXP, =< 24	STL	40 27 00.03	S, FLG, W	Sys #5			
			EXP, > 24	STL	40.27.00.04	FLG, W	Sys #5			
			SUB	SST	40.27.00.08	FLG, W	None			
Basin Drain	BD	>=4	EXP	PVC	40 27 00.10	FLG, W	Sys #25	50, H	Brown	
Condensate Drain	CD	ALL	ALL	PVC	40 27 00.10	W	None	None		
Dewatering	DEW	>=4	BUR	CLDI	40.27.00.01	PRJ, MJ	Bagging	25, H	Brown	
			EXP			FLG, GR	Sys #5			
			SUB				Sys #2			
Drain	D	ALL	BUR/ENC	PVC	40 27 00.10	HS	None	G		Pipe, as specified for gravity applications
Mixed Liquor	ML	ALL	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	30, H	Light Brown	
			EXP			FLG,GR	Sys #5			
Non-Potable Water	No. 4	>=4	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	100, H	Dark Blue	
			EXP			FLG,GR	Sys #5			
		<4	BUR	PVC	40 27 00.10	W	None			
			SUB	SST	41 27 00.08	W, S	None			
			EXP	GSP	40 27 00.07	S	Sys #5			
		<4	ALL	SST	40 27 00.08	S, W	None			Where Noted On Drawings
Primary Effluent	PE	>=4	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	25, H	Light Brown	
			EXP			FLG,GR	Sys #5			
		<4	EXP	GSP	40 27 00.07	S	None			

PIPING LEGEND

EXPOSURE

ALL ALL
BUR BURIED
EXP EXPOSED
SUB SUBMERGED
ENC CONCRETE ENCASED
UND UNDER STRUCTURE

MATERIAL

CLDI CEMENT-LINED DUCTILE IRON
CLWS CEMENT-LINED WELDED STEEL
COP COPPER
GSP GALVANIZED STEEL PIPE
HDPE HIGH-DENSITY POLYETHYLENE
PVC POLYVINYL CHLORIDE
SST STAINLESS STEEL
STL STEEL
WS FABRICATED WELDED STEEL

JOINT TYPE

FL FLANGED
GR GROOVED
HS HUB AND SPIGOT
MJ MECHANICAL JOINT
PRJ PROPRIETARY RESTRAINED
RM RESTRAINED MECHANICAL
S SCREWED
SL SOLDERED
W WELDED (INCLUDING SOLVENT AND FUSION)

PRESSURE TEST

G GRAVITY SERVICE: TEST PRESSURE IS NOT SHOWN ON GRAVITY SERVICES. TEST TO HIGHEST LIQUID LEVEL THAT PIPE CAN BE SUBJECT TO.
H HYDROSTATIC
I IN SERVICE
P PNEUMATIC

PROFESSIONAL ENGINEER REGISTERED Lawrence Fettkether 3755 STATE OF IDAHO LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	REVISION	CHK	BY	APVD
		L. FETTKETHER	M. RARDIN		B. RABINOWITZ	G. THOMPSON	APVD

NAMPA WWTP PHASE I UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
PIPING SCHEDULE - 1

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-025
SHEET	21 of 157

BID DOCUMENTS

Piping Schedule

Service	Legend	Size(s) In.	Exposure	Piping Material	Specification Section	Joint Type	Coating	Test Pressure and Type (psig, x), x = type indicated in Legend	Pipe Color	Remarks
Return Activated Sludge	RAS	<=36	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	30, H		
		<30	SUB			FLG,GR	Says #2		Light Brown	
		<30	EXP				Sys #5			
		>=30	EXP	CLWS	33 05 01.01	W,FLG	Sys #5			
Roof Drain	RD	ALL	ALL	PVC	40 27 00.10	W	None	G		
Secondary Influent	SI	>=4	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	25, H		
			SUB			FLG,GR	Sys #2		Light Brown	
			EXP				Sys #5			
		<4	EXP	GSP	40 27 00.07	S	None			
Secondary Sludge	SS	>=4	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	100, H	Light Brown	
			EXP			FLG,GR	Sys #4			EXP in vault
Trickling Filter Secondary Effluent	TFSE	>=4	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	100, H	Light Brown	
			EXP			FLG,GR	Sys #4			EXP in vault
Thickener Overflow	TOF	>=4	BUR	CLDI	40 27 00.01	PRJ,MJ	Bagging	30, H		
Underdrain	UD	>=4	EXP	CLDI	40 27 00.01	FLG, GR	Sys #5	30, H	Gray	CLDI for UD inside Pump Station to buried valve on discharge
		>=4	BUR (Pressure)	PVC	40 27 00.10	HS	None			C900 for UD from Pump Station to PEPS
		>=4	BUR (Gravity)							Gravity PVC for UD from MH to PEPS
		>=4	UND	HDPE	33 46 16	W	None	NA		HDPE for UD under Basin 3 to UD Pump Station

PIPING LEGEND

EXPOSURE

ALL	ALL
BUR	BURIED
EXP	EXPOSED
SUB	SUBMERGED
ENC	CONCRETE ENCASED
UND	UNDER STRUCTURE

MATERIAL

CLDI	CEMENT-LINED DUCTILE IRON
CLWS	CEMENT-LINED WELDED STEEL
COP	COPPER
GSP	GALVANIZED STEEL PIPE
HDPE	HIGH-DENSITY POLYETHYLENE
PVC	POLYVINYL CHLORIDE
SST	STAINLESS STEEL
STL	STEEL
WS	FABRICATED WELDED STEEL

JOINT TYPE

FL	FLANGED
GR	GROOVED
HS	HUB AND SPIGOT
MJ	MECHANICAL JOINT
PRJ	PROPRIETARY RESTRAINED
RM	RESTRAINED MECHANICAL
S	SCREWED
SL	SOLDERED
W	WELDED (INCLUDING SOLVENT AND FUSION)

PRESSURE TEST

G	GRAVITY SERVICE: TEST PRESSURE IS NOT SHOWN ON GRAVITY SERVICES. TEST TO HIGHEST LIQUID LEVEL THAT PIPE CAN BE SUBJECT TO.
H	HYDROSTATIC
I	IN SERVICE
P	PNEUMATIC

PROFESSIONAL ENGINEER
REGISTERED
Lawrence Fettkether
3755
STATE OF IDAHO
LAWRENCE M. FETTKETHER
16 December 2014

NO.	DATE	DSGN	DR	CHK	APVD	REVISION	BY	APVD
		L FETTKETHER	M RARDIN	B RABINOWITZ	APVD		G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

GENERAL
PIPING SCHEDULE - 2

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-026
SHEET	22 of 157

BID DOCUMENTS

FILENAME: 010-00-GEN-G-026.dgn PLOT DATE: 2014\12\05 PLOT TIME: 2:02:26 PM

AREA CLASSIFICATION AND MATERIAL SELECTION TABLE

FACILITY	ROOM/AREA	DESIGNATION	NFPA 820 CLASSIFICATION	2012 NFPA 820 REFERENCE	NFPA 820 VENTILATION	NFPA 820 FIRE PROTECTION MEASURES	NEMA 250 ENCLOSURE TYPE	ELECTRICAL CONDUIT MATERIALS	MATERIALS FOR ELECTRICAL OUTLET AND DEVICE BOXES, MOUNTING PLATES AND FITTINGS	MATERIALS FOR ELECTRICAL COUNDUIT SUPPORTS	FRAMING CHANNEL MATERIAL	DUCTWORK MATERIALS	MATERIALS FOR DUCTWORK SUPPORTS	MATERIALS FOR PIPING SUPPORTS	MOUNTING HARDWARE AND ANCHOR BOLTS FOR ALL TRADES (I.E. NUTS, BOLTS, FASTENERS, ETC.)	NOTES
PEPS ELECTRICAL BUILDING	ELECTRICAL ROOM	DRY, UNFINISHED	UNCLASSIFIED	N/A	N/A	HYDRANT	1, GASKETED STEEL	RGS	MALLEABLE IRON	HOT DIPPED GALVANIZED STEEL OR 304 SST	HOT DIPPED GALVANIZED STEEL	ALUMINUM	GALVANIZED STEEL	HOT DIPPED GALVANIZED STEEL	316 SST	
PRIMARY EFFLUENT PUMP STATION	WET WELL	WET, CORROSIVE	UNCLASSIFIED	N/A	N/A	HYDRANT	4X	PVC-COATED RGS	MALLEABLE IRON	PVC COATED RIGID GALVANIZED STEEL OR 316 SST	316 SST	N/A	N/A	N/A	316 SST	
	ABOVE WET WELL	WET	UNCLASSIFIED	N/A	N/A	HYDRANT	4X	RGS	MALLEABLE IRON	HOT DIPPED GALVANIZED STEEL OR 304 SST	304 SST	N/A	N/A	HOT DIPPED GALVANIZED STEEL	316 SST	
AERATION BASINS 1, 2, & 3	INTERIOR OF BASINS BELOW WALLS	WET, CORROSIVE	UNCLASSIFIED	TABLE 5.2, ROW 7	N/A	HYDRANT	4X	PVC-COATED RGS	MALLEABLE IRON	PVC COATED RIGID GALVANIZED STEEL OR SST	316 SST	N/A	N/A	316 SST	316 SST	
	INTERIOR OF BASINS ABOVE WALLS	WET	UNCLASSIFIED	TABLE 5.2, ROW 7	N/A	HYDRANT	4X	RGS	MALLEABLE IRON	HOT DIPPED GALVANIZED STEEL OR 304 SST	HOT DIPPED GALVANIZED STEEL	N/A	N/A	HOT DIPPED GALVANIZED STEEL	316 SST	
NO. 4 WATER PUMP STATION	INSIDE PUMP STATION	WET	UNCLASSIFIED	N/A	N/A	HYDRANT	4X	RGS	MALLEABLE IRON	HOT DIPPED GALVANIZED STEEL OR 304 SST	HOT DIPPED GALVANIZED STEEL	N/A	N/A	HOT DIPPED GALVANIZED STEEL	316 SST	
SECONDARY CLARIFIER METER VAULT	VAULT	WET, CORROSIVE	UNCLASSIFIED	N/A	N/A	N/A	4X	PVC-COATED RGS	MALLEABLE IRON	PVC COATED RIGID GALVANIZED STEEL OR 316 SST	316 SST	N/A	N/A	304 SST	316 SST	
UNDERDRAIN PUMP WET WELL	VAULT	WET, CORROSIVE	UNCLASSIFIED	N/A	N/A	N/A	4X	PVC-COATED RGS	MALLEABLE IRON	PVC COATED RIGID GALVANIZED STEEL OR SST	316 SST	N/A	N/A	316 SST	316 SST	
SITE	OUTSIDE	WET, EXTERIOR	UNCLASSIFIED	N/A	N/A	N/A	4X	UNDERGROUND: SCH 40 PVC; EXPOSED: RGS	MALLEABLE IRON	HOT DIPPED GALVANIZED STEEL OR 304 SST	HOT DIPPED GALVANIZED STEEL	N/A	N/A	HOT DIPPED GALVANIZED STEEL	316 SST	

NOTES:

1. SEE SPECIFICATION SECTION 09 90 00, PAINTING AND COATINGS, FOR SYSTEM REQUIREMENTS, AND NOTES IN LAST COLUMN.
2. CLASSIFICATION FOR EXISTING AREAS NOT INDICATED ON THIS TABLE HAVE NOT BEEN DETERMINED. ANY WORK DONE IN AREAS NOT LISTED ON THIS TABLE SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
3. FOR INSTRUMENT ENCLOSURE RATINGS AND MATERIALS, SEE INSTRUMENT LIST AND SPECIFICATION SECTION 41 91 00, INSTRUMENTATION AND CONTROL COMPONENTS.
4. NEMA 4X ENCLOSURES SHALL BE NON-METALLIC FIBERGLASS, UNO.
5. REMARKS IN NOTES COLUMN, REFER TO PAINT SYSTEMS DESCRIBED IN 09 90 00, PAINTING AND COATING. THESE SYSTEMS SHALL BE USED FOR PIPING, APPURTENANCES, SUPPORTS, EQUIPMENT WHERE REQUIRED AND OTHER MISCELLANEOUS METALS REQUIRING COATING THAT IS NOT OTHERWISE SPECIFIED.

ABBREVIATIONS:

NA	NOT APPLICABLE
NR	NOT REQUIRED
CGD	COMBUSTIBLE GAS DETECTOR
H	HYDRANT
FE	FIRE EXTINGUISHER
FAS	FIRE ALARM SYSTEM
FDS	FIRE DECTION SYSTEM
PVC	POLYVINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL
SST	STAINLESS STEEL
UNO	UNLESS NOTED OTHERWISE
VM	VENTILATION MONITORING

PROFESSIONAL ENGINEER REGISTERED 11623 STATE OF IDAHO TOBY PALIN
12/15/2014

NO.	DATE	DSGN	DR	CHK	APVD	BY	REVISION
		T PALIN	M RARDIN	L FETTKETHER	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

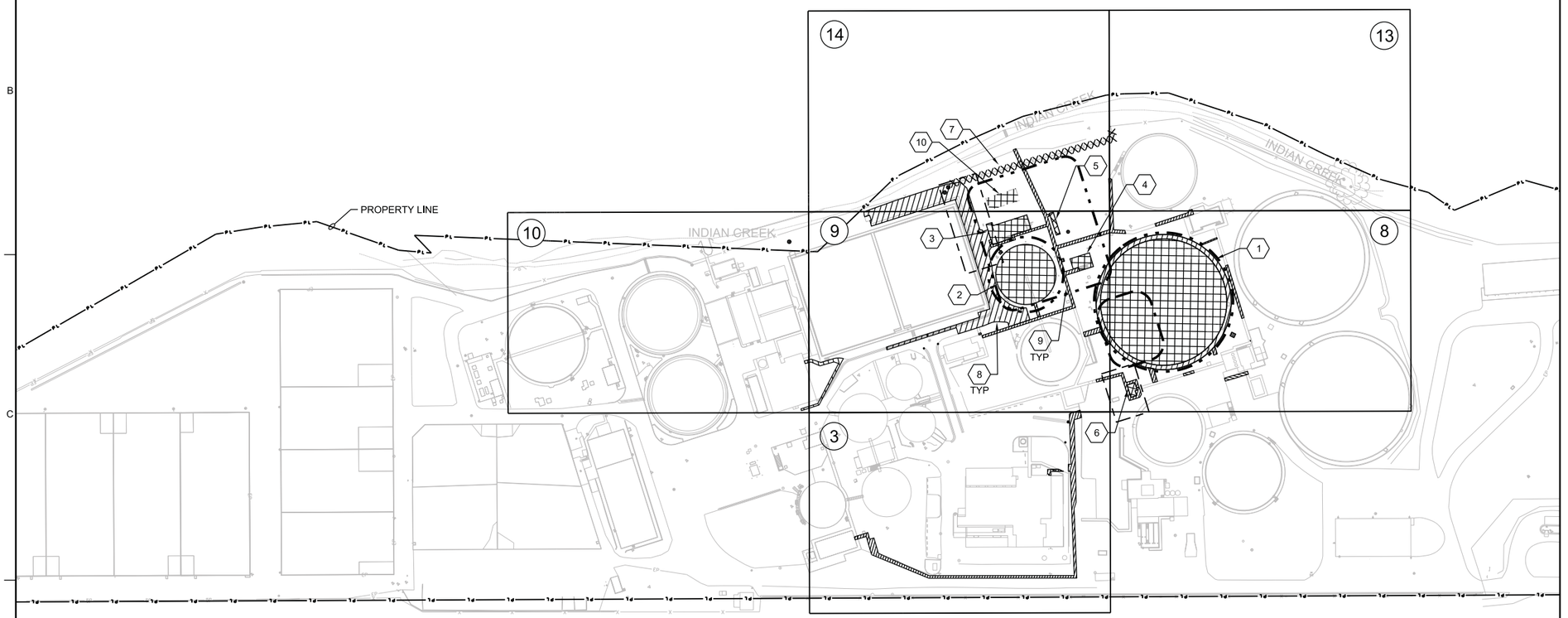
CH2MHILL®

GENERAL
AREA CLASSIFICATION SCHEDULE AND MATERIAL SELECTION TABLE

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	DECEMBER 2014
PROJ	480770
DWG	010-G-028
SHEET	23 of 157

BID DOCUMENTS



SHEET KEYNOTES

1. DEMOLISH EXISTING TRICKLING FILTER NO. 1.
2. DEMOLISH EXISTING SECONDARY CLARIFIER NO. 1.
3. DEMOLISH EXISTING SECONDARY EFFLUENT PUMP STATION.
4. DEMOLISH EXISTING SECONDARY SLUDGE PUMP STATION.
5. DEMOLISH EXISTING PARSHALL FLUME NO. 3.
6. DEMOLISH EXISTING PRIMARY EFFLUENT SPLITTER BOX.
7. DEMOLISH SEGMENT OF CHAIN-LINK FENCE.
8. DEMOLISH EXISTING ASPHALT PAVEMENT.
9. DEMOLISH EXISTING SIDEWALK.
10. DEMOLISH EXISTING UNDERGROUND CONCRETE CHLORINE CONTACT BASIN.

GENERAL SHEET NOTES

A. ALL DEMOLITION TO CONFORM TO SPECIFICATION SECTION 02 41 00 - DEMOLITION.

B. DEMOLITION OF PIPES ARE NOT SHOWN ON THIS SHEET FOR CLARITY. SEE SHEETS 050-D-108 THRU 050-D-114 FOR PIPE DEMOLITION.

C. PIPE DEMOLITION SHALL INCLUDE REMOVAL OF SURFACE IMPROVEMENT, TRENCHING, REMOVAL OF EXISTING PIPE, CAPPING AND/OR PLUGGING, AND PLACEMENT OF BACKFILL TO 12" BELOW ADJACENT GRADE. WHERE IDENTIFIED AND AS APPROVED BY ENGINEER, EXISTING PIPES MAY BE ABANDONED IN PLACE. ABANDONMENT INCLUDES CAPPING AND/OR PLUGGING AND ASSOCIATED TRENCHING AND BACKFILL.

D. FACILITY DEMOLITION INCLUDES BUT IS NOT LIMITED TO THE REMOVAL OF THE STRUCTURE (WALLS, SLAB, FOOTINGS, ETC.), MECHANICAL EQUIPMENT, PROCESS PIPING, SUPPORT UTILITIES, FILTER MEDIA, EXISTING ABANDONED UTILITIES, SURROUNDING CONCRETE RIBBON CURB OR SIDEWALK, AND GRAVEL SURFACE TREATMENT.

E. SEE 010-G-006 FOR OVERALL EXISTING CONDITIONS SITE PLAN.

F. MANY FACILITIES THAT ARE SCHEDULED TO BE DEMOLISHED CONTAIN ITEMS TO BE SALVAGED. SEE SPECIFICATION SECTION 02 41 00 - DEMOLITION, FOR A DETAILED LIST.

G. SEQUENCING OF DEMOLITION AND ALL NECESSARY TEMPORARY FACILITIES SHALL CONFORM TO SPECIFICATION SECTION 01 31 30 -CONSTRUCTION AND SCHEDULE CONSTRAINTS, AND APPROVED SEQUENCING PLAN.

H. CONTRACTOR SHALL SUBMIT A DEWATERING PLAN FOR REVIEW AND APPROVAL.

I. NORTHING AND EASTINGS SHOWN ON FOLLOWING DEMOLITION SHEETS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY EXACT EXTENT OF PIPE DEMOLITION PRIOR TO CONSTRUCTION.

J. CONTRACTOR TO CONSULT REFERENCE DRAWINGS FOR INFORMATION ON EXISTING FACILITIES TO BE DEMOLISHED.

K. SURFACE DEMOLITION IS SHOWN FOR HARDSCAPE SURFACES ONLY (ASPHALT AND CONCRETE). EXTENT OF REMOVAL OF GRAVEL SURFACE TREATMENT IS NOT SHOWN. WHERE POSSIBLE, CONTRACTOR TO RETAIN AND STOCKPILE GRAVEL SURFACE TREATMENT FOR REUSE. COORDINATE LOCATION OF STOCKPILES WITH OWNER.

L. ACTUAL LIMITS OF EXCAVATION AND SHORING FOR EACH EXISTING FACILITY TO BE DEMOLISHED AND FOR EACH NEW FACILITY WILL DEPEND UPON THE CONTRACTOR'S APPROVED EXCAVATION PLAN AND SHORING DESIGN. LIMITS AND SHORING SHOWN ARE FOR INFORMATION ONLY.

M. EXISTING BASE MAP MAY CONTAIN ERRORS. CONTRACTOR TO FIELD VERIFY THE LOCATION OF PIPING AND STRUCTURES PRIOR TO DEMOLITION.

N. SEE SITE ELECTRICAL SHEETS FOR DETAILS ON NEW ELECTRICAL WORK.

O. WHERE INDICATED, DE-ENERGIZE AND DISCONNECT NON-ELECTRICAL EQUIPMENT FOR REMOVAL BY OTHERS. WHERE INDICATED, DE-ENERGIZE, DISCONNECT AND REMOVE ELECTRICAL EQUIPMENT. REMOVE AFFECTED CIRCUITS AND RACEWAYS BACK TO FIRST SERVING PANELBOARD OR CONTROL PANEL. WHERE AFFECTED CIRCUITS ARE CONSOLIDATED WITH OTHERS, REMOVE RACEWAYS BACK TO FIRST SHARED CONDULET OR BOX. WHERE UNDERGROUND OR EMBEDDED RACEWAYS ARE TO BE ABANDONED, REMOVE RACEWAY TO 1-INCH BELOW SURFACE OF STRUCTURE OR 12 INCHES BELOW GRADE AND RESTORE EXISTING SURFACE.

P. IN GENERAL SILT FENCE TO BE INSTALLED IN PERVIOUS SURFACES (I.E. GRAVEL, DIRT, SOD), SAND BAGS OR STRAW WATTLES TO BE INSTALLED ON IMPERVIOUS SURFACES (I.E. ASPHALT, CONCRETE).

N
0 100 200 300
Scale in Feet

PROFESSIONAL ENGINEER
REGISTERED
Amanda Marie Smith
13300
12/16/2014
STATE OF IDAHO
AMANDA MARIE SMITH

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
		A THOMPSON	A TOLMAN	B ROBERTS	APVD	G THOMPSON	

NAMPA WWTP PHASE 1 UPGRADES
PROJECT GROUP A
CITY OF NAMPA
NAMPA, IDAHO

CH2MHILL®

CIVIL

OVERALL SITE DEMOLITION PLAN

BID DOCUMENTS

AS NOTED	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"	
DATE	DECEMBER 2014
PROJ	480770
DWG	050-D-100
SHEET	24 of 157

FILENAME: 050-01-DEM-D-100.dgn PLOT DATE: 12/10/2014 PLOT TIME: 4:15:49 PM