# GOVERNMENT OF ISLAMIC REPUBLIC OF AFGHANISTAN

**SWIM** STRENGTHENING WATERSHED AND IRRIGATION MANAGEMENT

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for Construction

02 SEP 2019

**Project Name:** Batash Main Canal Rehabilitation
**Province:** Badakhshan
**District:** Cneter

**Afghanistan, Badakhshan.**
**Date: 11-July-2019**

# TABLE OF CONTENTS FOR BATASH MAIN CANAL


| SHEET # | SHEET CONTENTS | REMARKS |
|---|---|---|
| n/a | GIS Map | |
| n/a | General Note | |
| 1 | General Site Plan | |
| 2 to 25 | Plan and Profile | |
| 26 to 35 | Survey Sections | |
| 36 | Structure List With GPS Coordinates | |
| 37 | Canal Lining | |
| 38 | Box Culvert | |
| 39 | Foot Culvert Type - 1 | |
| 40 | Turnout Type - 1 | |
| 41 to 42 | Wash Inlet | |
| 43 to 44 | Slab Culvert | |
| 45 | Foot Culvert Type - 2 | |
| 46 | Retaining Wall | |
| 47 | Turnout Type - 2 | |
| 48 to 49 | Steel Slide Gate For Proposed Turnout | |

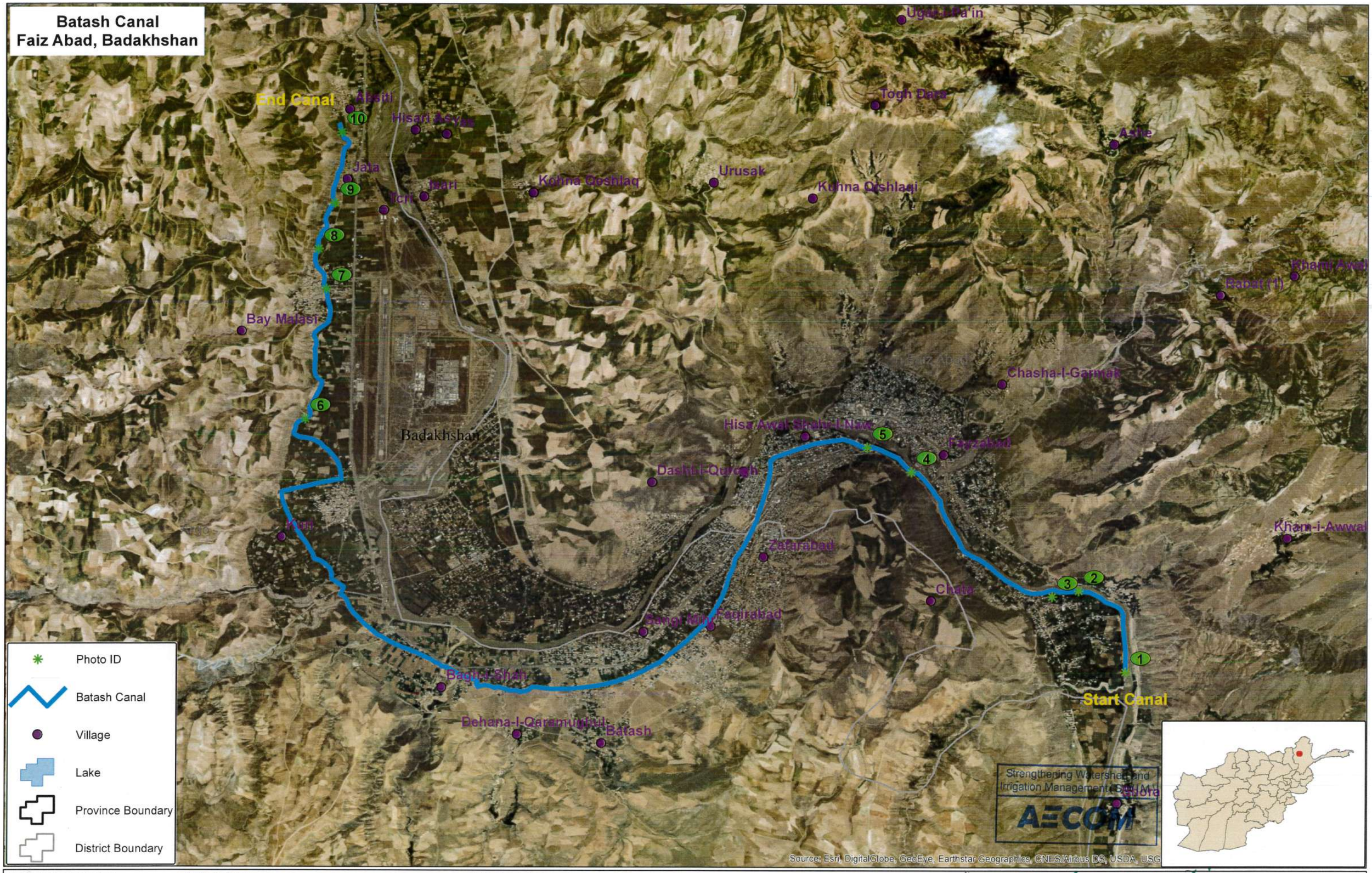

Watershed and Irrigation Management (SWIM)

AECOM

Issued for construction

02 SEP 2013

# Batash Canal
# Faiz Abad, Badakhshan




MAP INFORMATION
Map Produced : October 2017
Cartographer: Abdul Razaq
Projection : World Mercator
Datum : WGS 1984

Data Source
Base layer information including boundaries and place names courtesy of the Afghan Geodesy and Cartography Head Office (AGCHO).

Data Disclaimer
All boundaries and map features are approximate and should not be considered authoritative.
While every effort is made to use the best available data, accuracy of features or other information cannot be guaranteed.
Map prepared by the SWIM Project GIS Department.

0 0.5 1 2 3 4 Kilometers

Issued for construction
07 SEP 2017

USAID
FROM THE AMERICAN PEOPLE

## GENERAL:

1. SAMPLE OF ALL MATERIALS (STONE, PCC, STEEL GATES, RCC, GRAVEL, SAND, DRY STONE, PVC PIPE, GUARD RILL, WATER STOPPER, ETC.) SHALL BE APPROVED BY SWIM ENGINEER BEFORE THE CONTRACTOR USE FOR THE PROJECT, OTHERWISE SWIM ENGINEERS ARE AUTHORIZED TO REJECT THE USED MATERIALS.
2. ALL CONSTRUCTION WORKS SHALL BE CARRIED OUT WITH CLOSE COORDINATION AND PRIOR APPROVAL OF SWIM ENGINEERS. OTHERWISE SWIM ENGINEERS ARE AUTHORIZED TO REJECT THE EXECUTED WORKS AND CONTRACTOR HAS TO RE-DO IT.
3. ALL QUALITY CONTROL TESTS SHOULD BE CARRIED OUT BY THE CONTRACTOR IN A RECOGNIZED LABORATORY by AECOM SWIMM.
4. TO AVOID DELAY IN IRRIGATION, ALL DIVERSION WILL BE MADE WITH CONSULTATION OF COMMUNITY, EITHER THE DIVERSION SHALL BE MADE LEFT SIDE OR RIGHT SIDE OF THE CANAL

## GABION:

1. THE STONE SIZE RANGES FROM 150 MM TO 250 MM. SMALL STONES SHOULD BE AVOIDED. THE STONES USED SHOULD HAVE A MINIMUM SIZE OF NOT LESS THAN "D" (MESH WIDTH) AND NOT GREATER THAN 3.5 TIMES "D", WHERE D IS THE SPECIFIED MESH WIDTH. LARGER STONES CAN BE USED PROVIDED THAT THEIR TOTAL VOLUME DOES NOT EXCEED 5% OF THE CELL VOLUME.

## STONE MASONRY:

1. ALL STONE MASONRY WALLS SHALL BE WITH RATIO OF 1:4 CEMENT SAND MORTAR WITH CONSIDERING TO 35% OF MASONRY VOLUME.
2. ALL STONES SHALL BE FREE FROM DEFECTS LIKE CAVITIES, CRACKS, SAND HOLES, FLAWS, INJURIOUS VEINS, PATCHES OF LOOSE OR SOFT MATERIALS, ETC. ALSO, THE PERCENTAGE OF WATER ABSORPTION SHALL GENERALLY NOT EXCEED 5%, CERTIFICATION REQUIRED
3. STONES USED SHALL BE SMALL ENOUGH TO BE LIFTED AND PLACED BY HAND, LENGTH OF THE STONES SHALL NOT EXCEED THREE TIMES THEIR HEIGHTS, AND THE BREADTH OF THE BASE SHALL NOT BE GREATER THAN THREE-FOURTHS OR THE THICKNESS OF WALL OR LESS THAN 150MM. THE HEIGHT OF STONES FOR RUBBLE MASONRY MAY BE UP TO 300MM
4. STONES WITH ROUND FACES SHALL NOT BE USED AND NEVER EVER ACCEPTABLE.
5. ALL EXPOSED SURFACES OF MORTARED STONE MASONRY SHALL BE POINTED WITH THE CEMENT SAND MORTAR 1:3
6. FOR FACES OF THE STONEMASONRY THAT WILL BE BACKFILLED, CONTRACTOR IS TO MAKES SURE ALL GAPS BETWEEN STONES ARE FILLED WITH MORTAR.

## CONCRETE:

1. CONCRETE DESIGN SHOULD BE BASED ON 28 DAYS A COMPRESSIVE STRENGTH OF 25MPa FOR RCC AND 20MPa FOR PCC AS SPECIFIED ON THE DRAWINGS.
2. REINFORCEMENT YIELD STRESS "FY" SHALL NOT BE LESS THAN 60000 PSI
3. A MAXIMUM OF 25% STONE WITH A MAXIMUM STONE SIZE OF (25 to 40) CM TO BE USED IN BOULDER CONCRETE. THE CONCRETE MARK SHALL BE 15MPa AS SPECIFIED IN DESIGN AND DRAWINGS.
4. SAND OR FINE AGGREGATE SHALL FREE FROM SALT, ALKALI, CALCIUM SULPHATE OR VEGETATION AND IT SHALL NOT CONTAIN MORE THAN 0.5 PERCENT BY WEIGHT CLAY.
5. AGGREGATE: - COARSE AGGREGATE SHALL CONSIST OF CRUSHED GRAVEL WITH THE MAX SIZE OF 20MM.
6. WATER USED FOR ALL CONCRETE MIXTURE AND CONCRETE CURING SHALL BE FROM A SOURCE APPROVED BY THE SWIM ENGINEER AND AT THE TIME OF USE SHALL BE FREE FROM CONTAMINANTS.
7. THE MAXIMUM SLUMP FOR CONCRETE SHOULD BE BETWEEN (5-7.5) CM.
8. CONCRETE COMPACTION SHOULD BE DONE BY USING CONCRETE VIBRATOR AT THE TIME OF POURING IN SUCH A WAY TO FORM A SOLID COMPACT CONCRETE.
9. ALL CONCRETE AND MASONRY WORKS CURING SHOULD BE CONTINUED FOR 14 DAYS.
10. DURING COLD WEATHER ALL CONCRETING AND MASONRY WORKS SHOULD BE STOPPED, OR THE CONTRACTOR HAS TO CONSIDER COLD WEATHER CONCRETING PROCEDURE AS ACCEPTED BY THE SWIM ENGINEER.
11. CONCRETE SHUTTERING/FRAMEWORK SHOULD BE DONE WITH HIGH STABILITY AND PROPER BRACING.
12. FOR ALL CONCRETE WORKS (RCC, PCC, BOULDER CONCRETE, MORTAR AND GROUT) SHALL BE MIXED BY CONCRETE MIXER. HAND MIXING IS NOT PERMISSIBLE UNLESS THE VOLUME OF CONCRETE IS LESS THAN 1M³ AND SHALL BE VERIFIED BY SWIM ENGINEERS AS WELL.
13. THE CONTRACTOR SHALL HAVE AN EXPERIENCED SITE ENGINEER FULL TIME ON THE PROJECT SITE FOR FOLLOW UP THE DESIGN, DRAWINGS AND QUALITY CONTROL PURPOSES. EXECUTION OF WORKS WITHOUT PRESENCE OF SITE ENGINEER IS NOT ACCEPTABLE AND PAYABLE BY SWIM.
14. TWO-COAT PORTLAND CEMENT-BASED PLASTER SHALL BE APPLIED IN ACCORDANCE WITH ASTM C 926 OR EQUIVALENT. THE FINAL COAT SHALL BE FINISHED TO A TRUE AND EVEN SURFACE FREE FROM ROUGH AREAS, CHECKS, OR BLEMISHES. NOMINAL PLASTER FINISH THICKNESS SHALL BE 20MM OR MORE AS DIRECT BY QC IN ENGINEER IN THE SITE).
15. INSTALLATION OF PVC OR HDPE WATER STOPPERS MUST BE SECURELY POSITIONED IN THE FORMS TO PREVENT DEFLECTION OR MISALIGNMENT DURING CONCRETE PLACEMENT. TYPE OF WATER STOPPER SHALL BE CONFORM WITH ASTM D412 AND ASTM D2240.

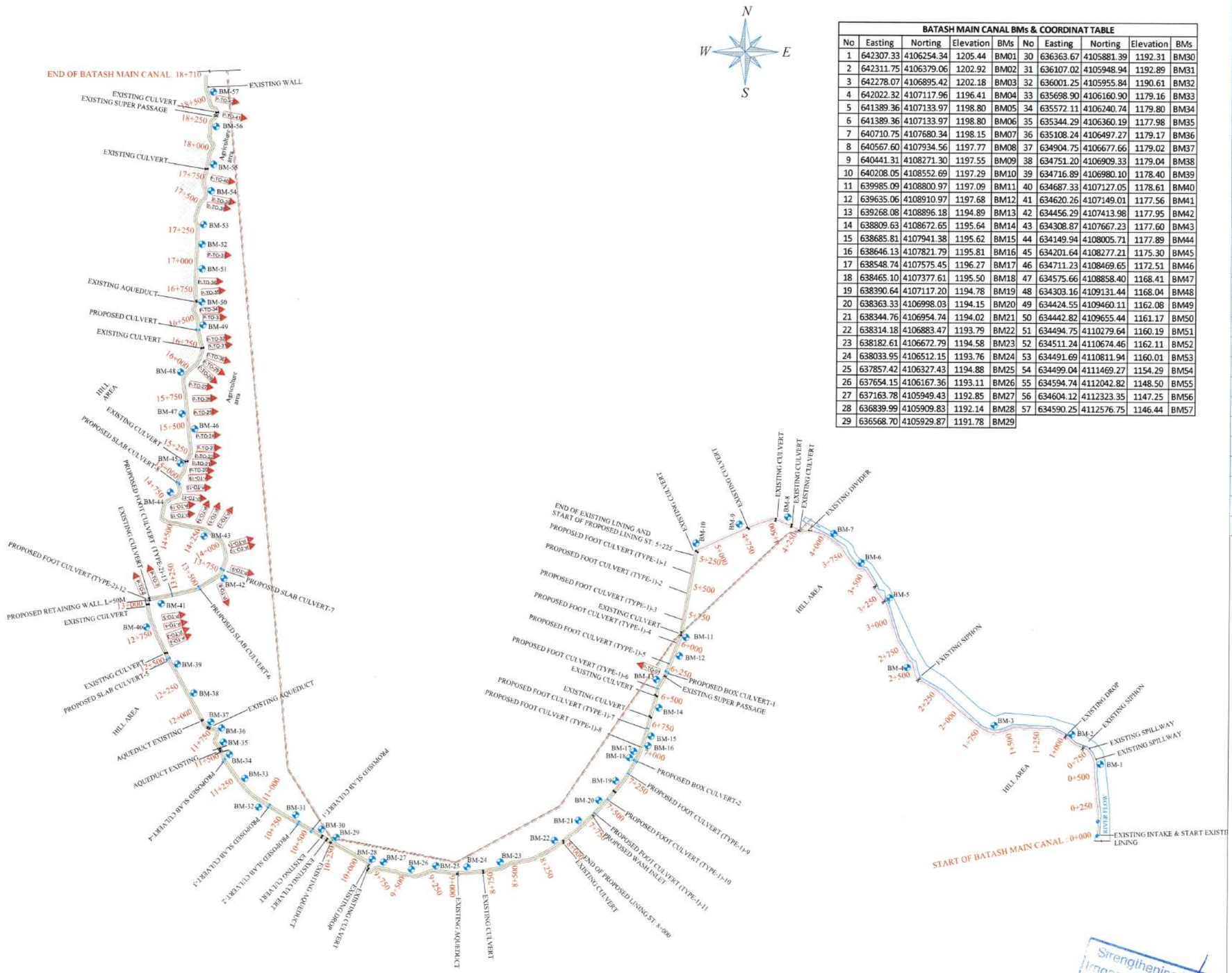
## BACKFILLING:

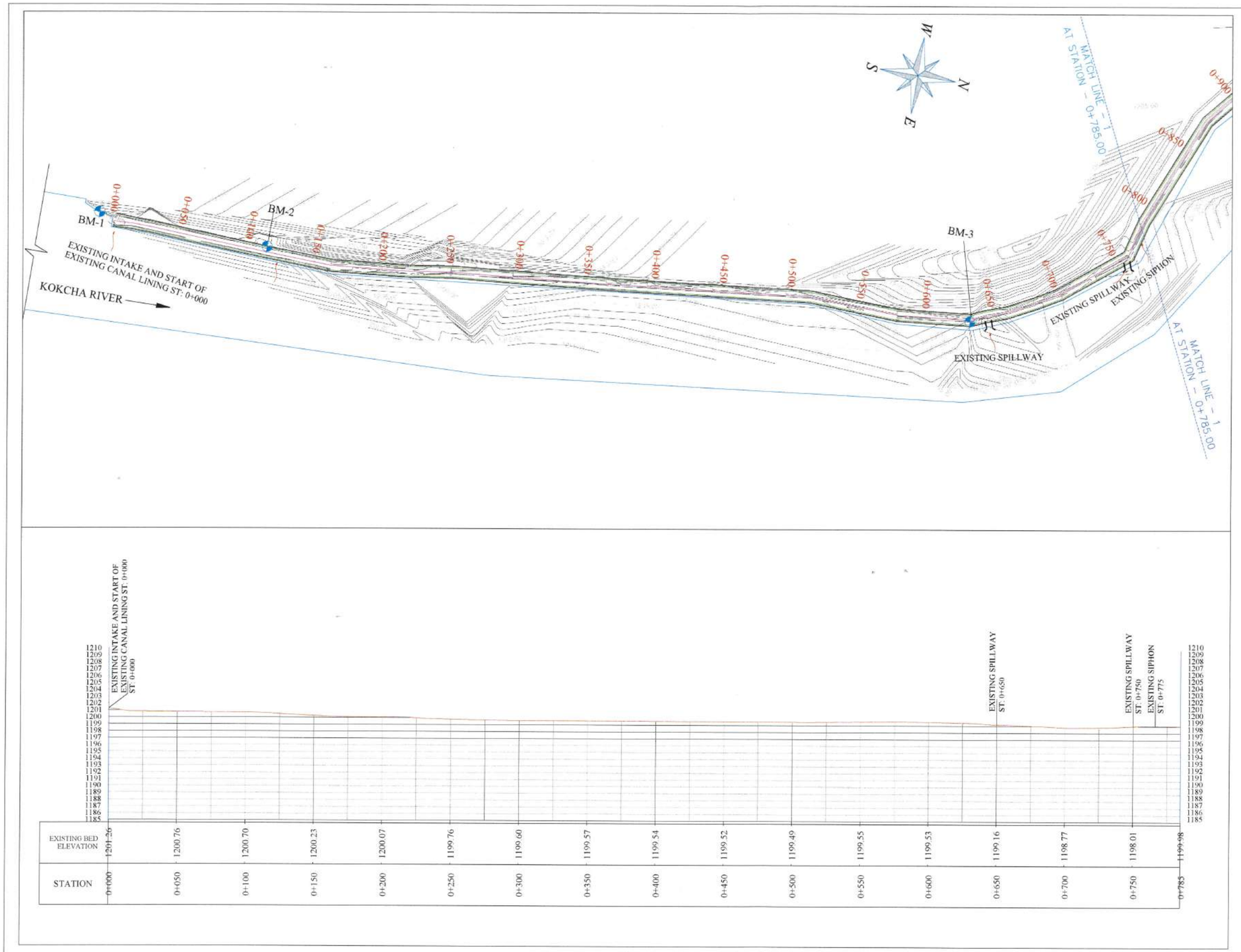
1. BACKFILLING MATERIAL SHOULD BE PROPERLY TESTED AND SELECTED TO BE SUITABLE AS PER APPROVAL OF SWIM ENGINEER AND STANDARD PRACTICE.
2. FOR BACKFILLING MAXIMUM THICKNESS OF EACH LOOSE SOIL LAYER SHOULD NOT MORE THAN 15CM.
3. STANDARD COMPACTION TESTS SHOULD BE CARRIED OUT FOR THE BACKFILLING LAYERS BY LAYERS.
4. THE PERCENTAGE OF COMPACTION SHOULD BE NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS STATED IN DESIGN AND DRAWINGS.

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction

02 SEP 2010


N
S
W
E
END OF BATASH MAIN CANAL 18+710
EXISTING WALL
EXISTING CULVERT
EXISTING SUPER PASSAGE
EXISTING CULVERT
EXISTING AQUEDUCT
PROPOSED CULVERT
EXISTING CULVERT
HILL AREA
EXISTING CULVERT
PROPOSED SLAB CULVERT-5
PROPOSED FOOT CULVERT (TYPE-2)-1
PROPOSED FOOT CULVERT (TYPE-2)-2
EXISTING CULVERT
PROPOSED FOOT CULVERT (TYPE-2)-12
PROPOSED RETAINING WALL, L=50M
EXISTING CULVERT
PROPOSED SLAB CULVERT-7
PROPOSED SLAB CULVERT-6
EXISTING CULVERT
PROPOSED SLAB CULVERT-5
HILL AREA
EXISTING AQUEDUCT
AQUEDUCT EXISTING
AQUEDUCT EXISTING
PROPOSED SLAB CULVERT-4
PROPOSED SLAB CULVERT-3
PROPOSED SLAB CULVERT-2
PROPOSED SLAB CULVERT-1
EXISTING CULVERT
EXISTING AQUEDUCT
EXISTING DROP
EXISTING CULVERT
EXISTING CULVERT
EXISTING AQUEDUCT
EXISTING CULVERT
EXISTING DROP
EXISTING CULVERT
EXISTING CULVERT
EXISTING CULVERT




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

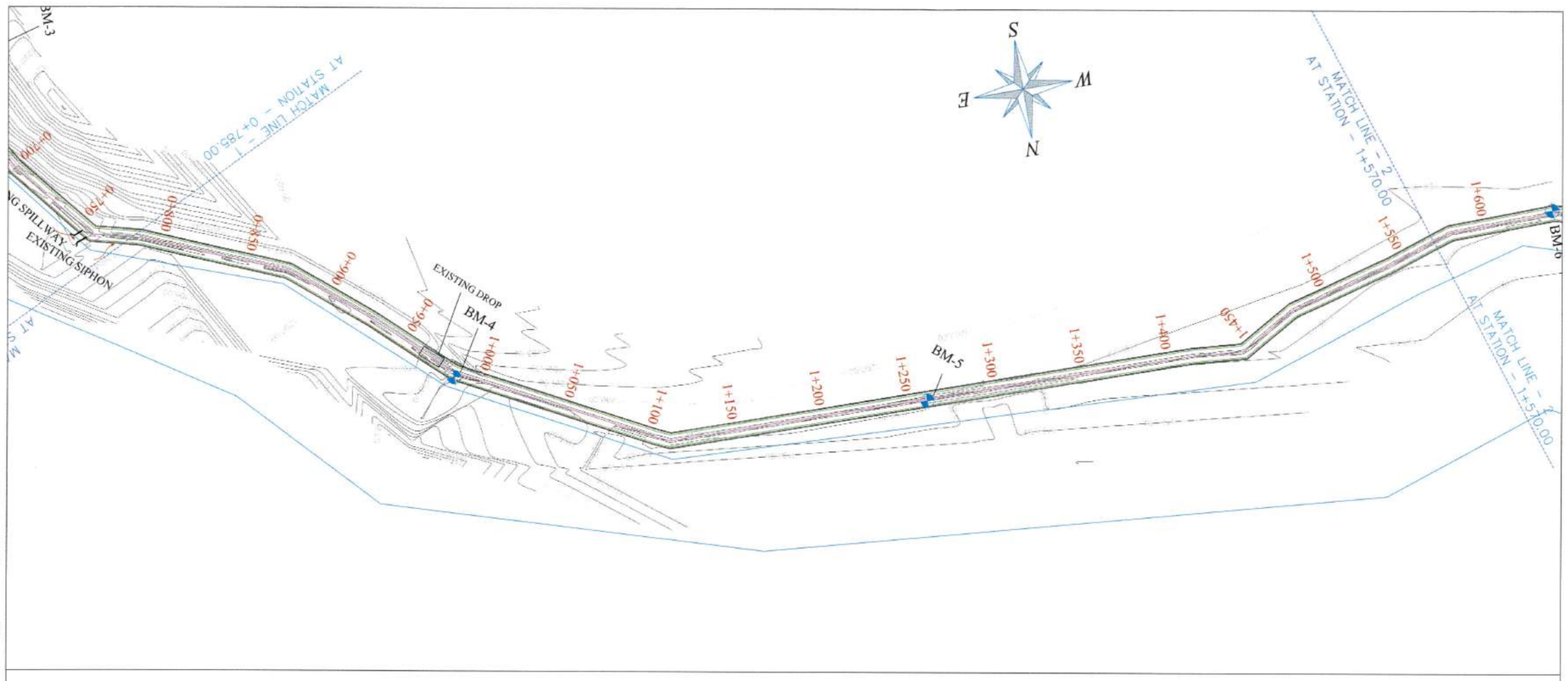
Strengthening Watershed and Irrigation Management (SWIM)

AECOM

Issued for construction

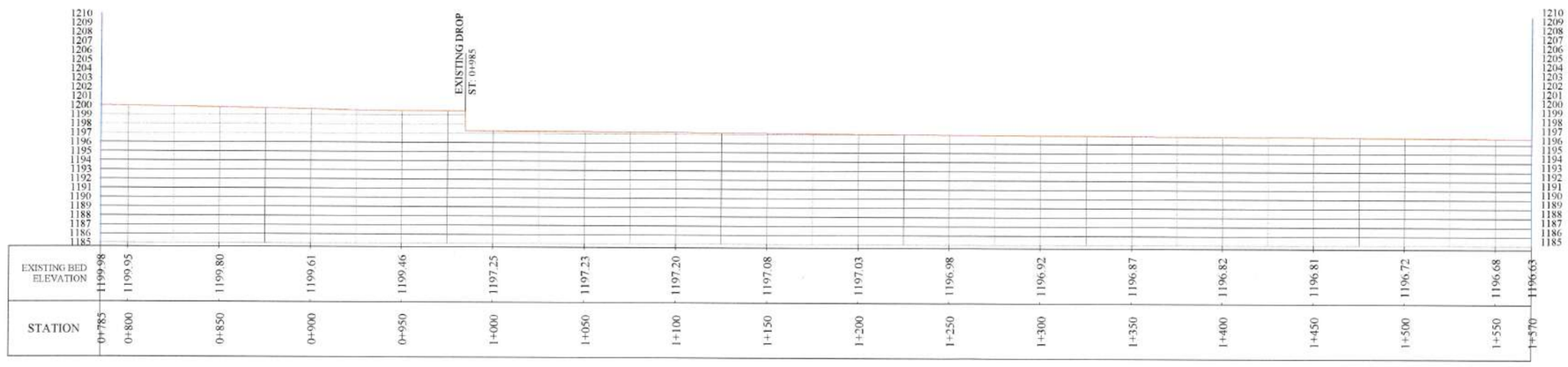
02 SEP 2019

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (0+000 TO 0+785) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 02 / 49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

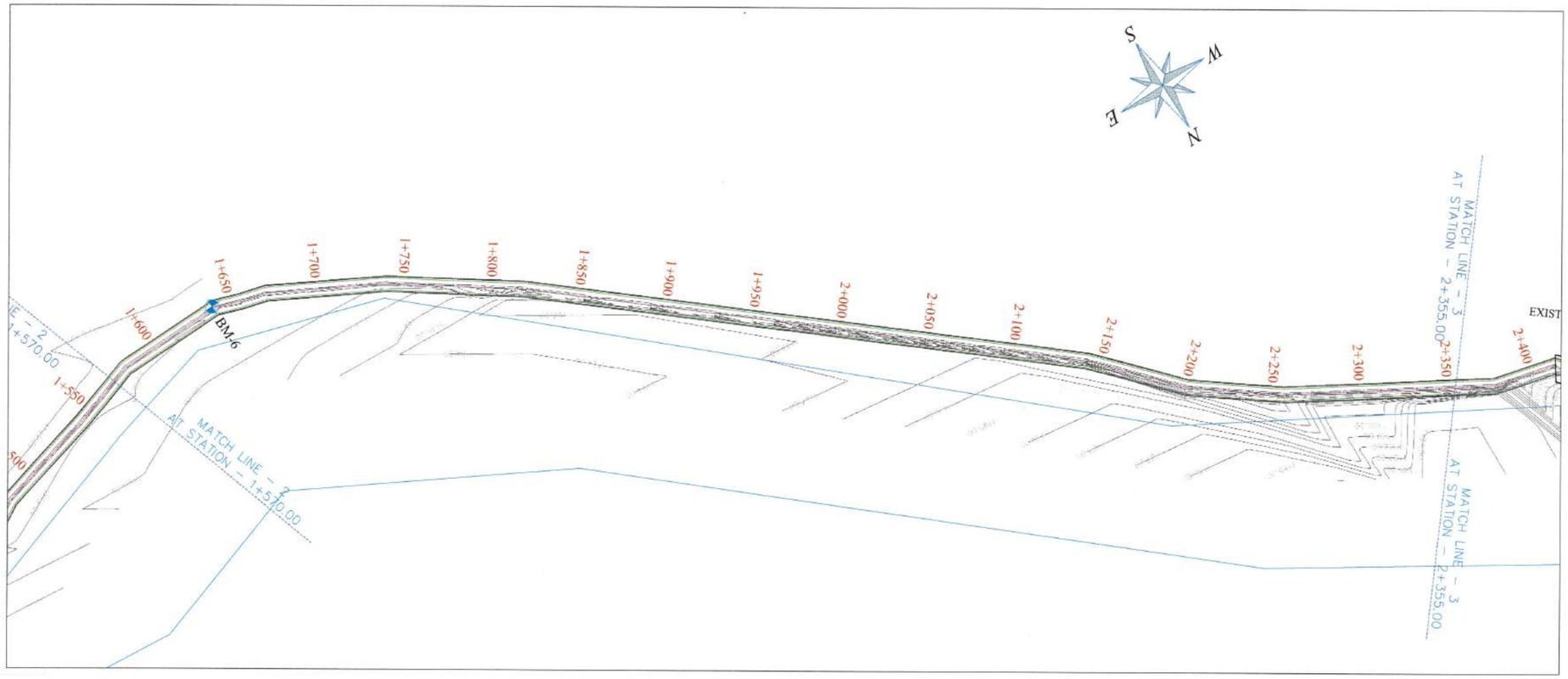



Issued for Construction

Strengthening Watershed and Irrigation Management (SWIM)

AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW&RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (0+785 TO 1+570) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: 1 Sep 2019 | SHEET NO. 03/49 |




**LEGEND:-**

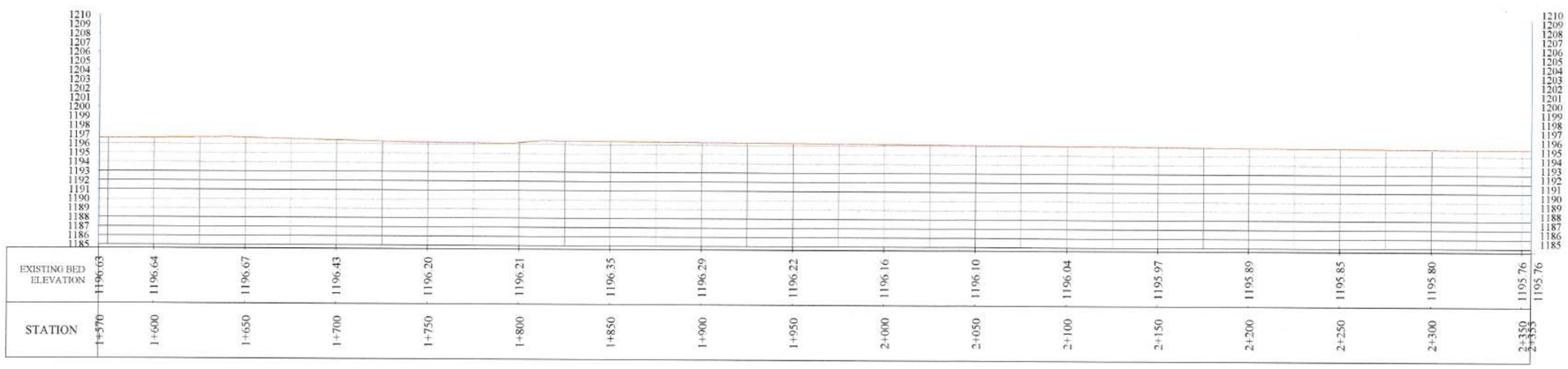
| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for construction

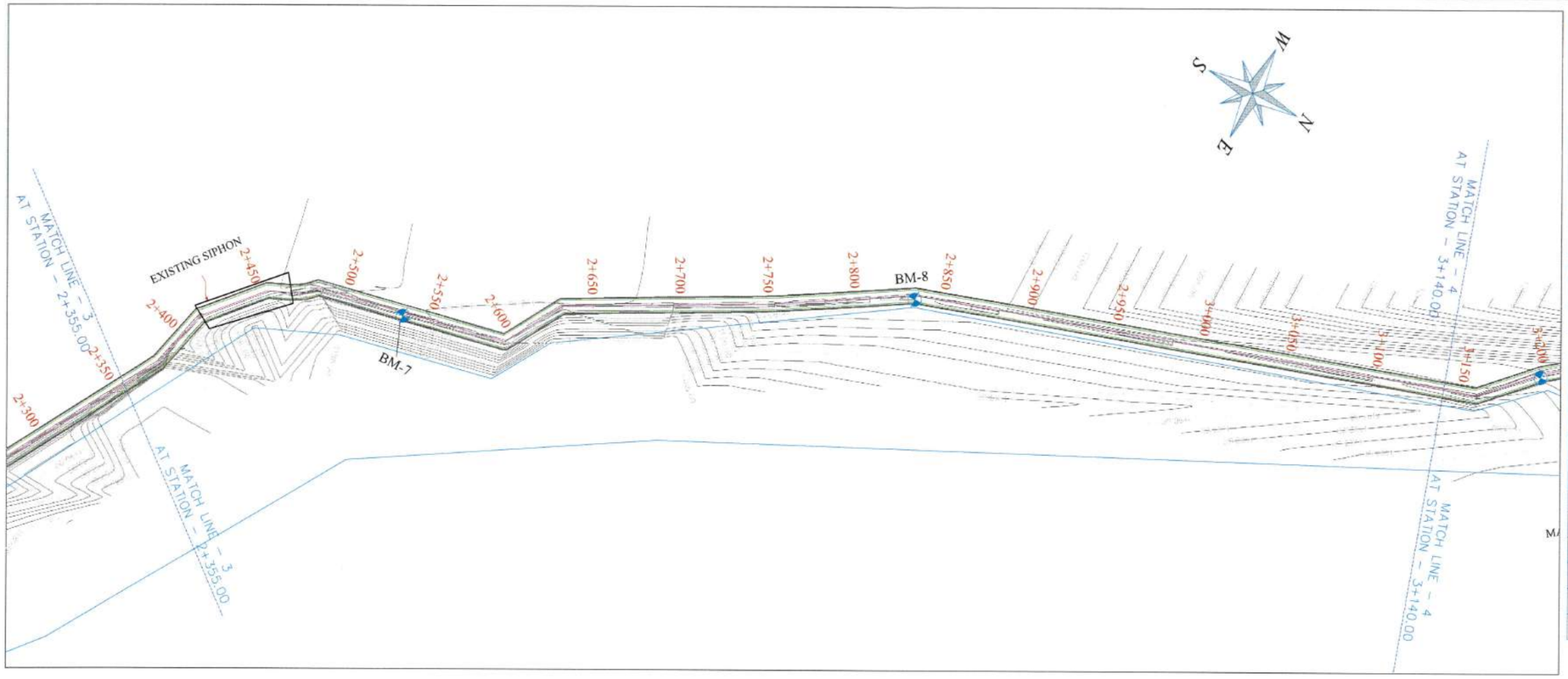
02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)

AECOM




| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL | |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (1+570 TO 2+355) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 04 /49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: 1,Sep, 2019 | |




**LEGEND:-**

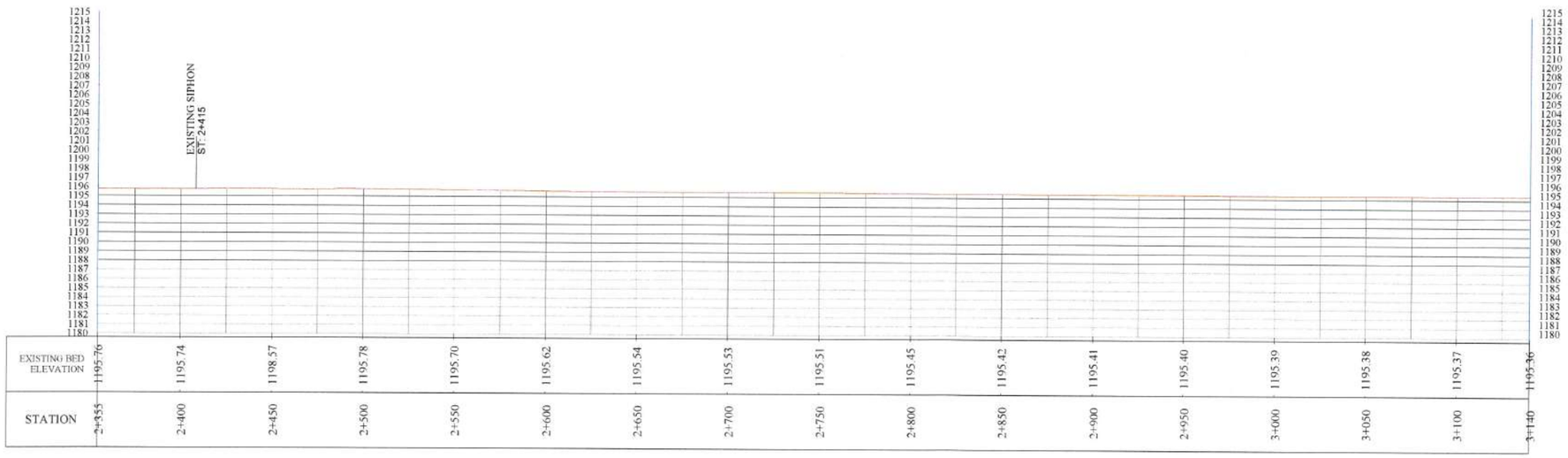
| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for construction

02 SEP 2013

Strengthening Watershed and Irrigation Management (SWIM)

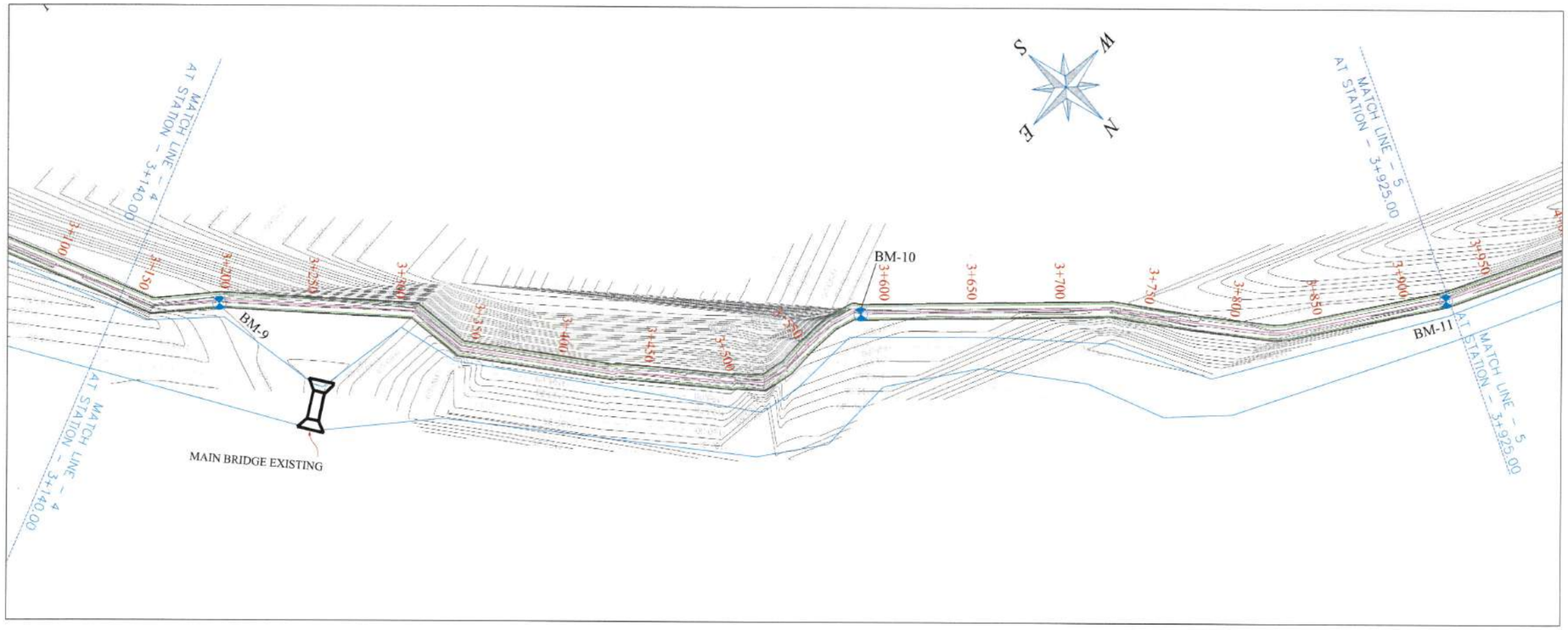
AECOM




| STATION | EXISTING BED ELEVATION |
|---|---|
| 2+355 | 1195.76 |
| 2+400 | 1195.74 |
| 2+450 | 1198.57 |
| 2+500 | 1195.78 |
| 2+550 | 1195.70 |
| 2+600 | 1195.62 |
| 2+650 | 1195.54 |
| 2+700 | 1195.53 |
| 2+750 | 1195.51 |
| 2+800 | 1195.45 |
| 2+850 | 1195.42 |
| 2+900 | 1195.41 |
| 2+950 | 1195.40 |
| 3+000 | 1195.39 |
| 3+050 | 1195.38 |
| 3+100 | 1195.37 |
| 3+140 | 1195.36 |

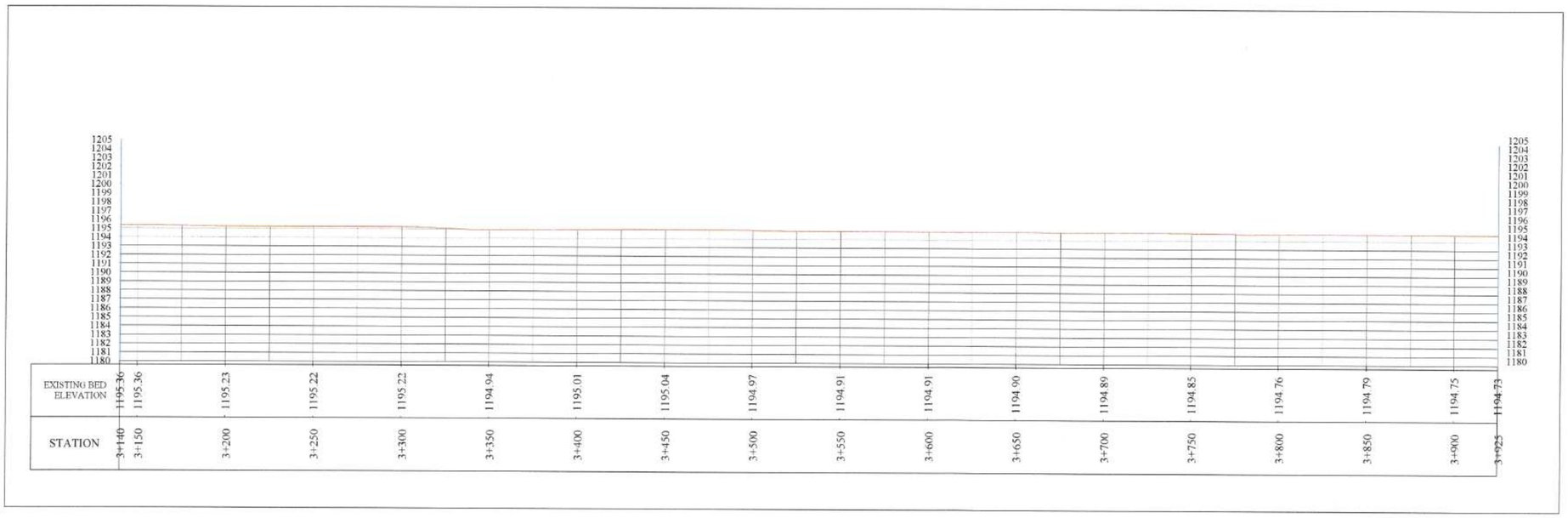
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (2+355 TO 3+140) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO 05-49 |
| | | | | | | DATE: | DATE: | DATE: 14 OCT 2013 | DATE: | |

of sep 2013




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |



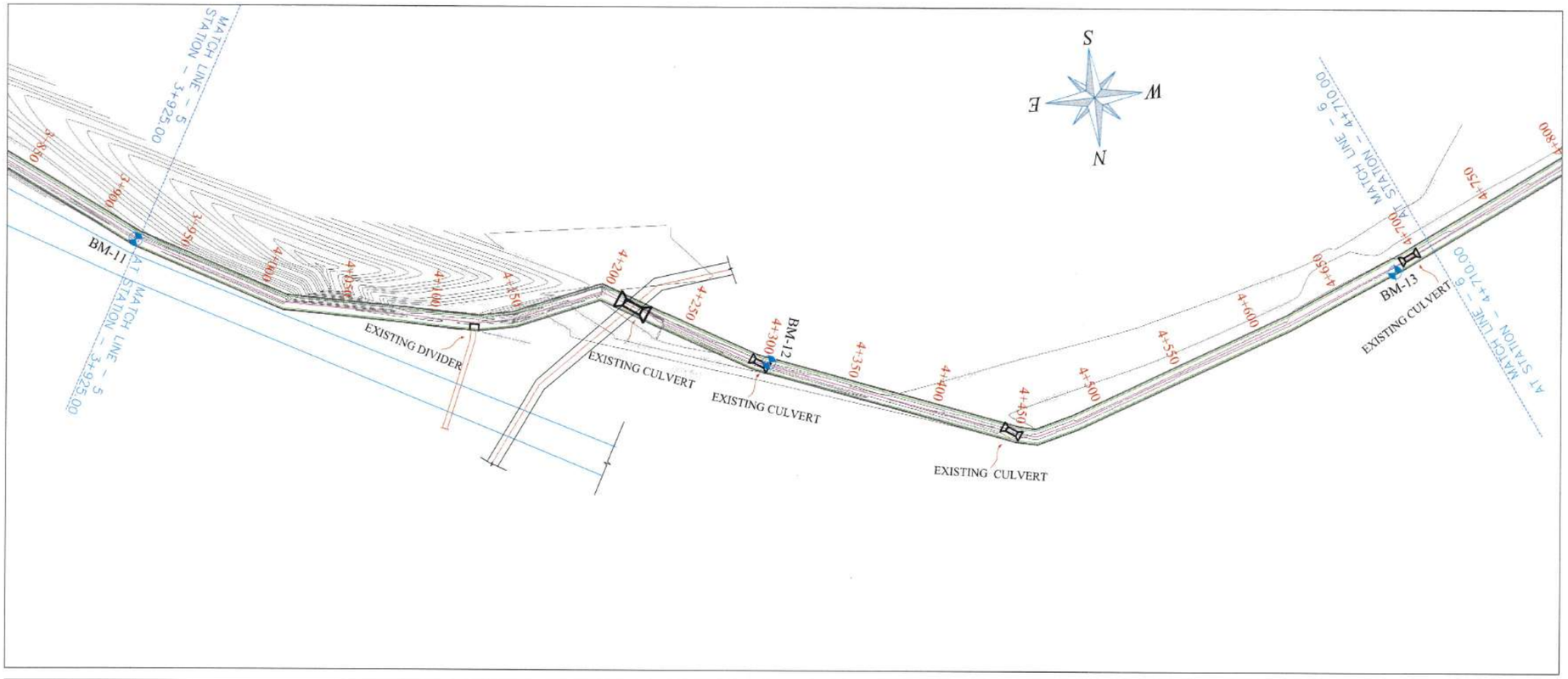

Issued for construction

02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)

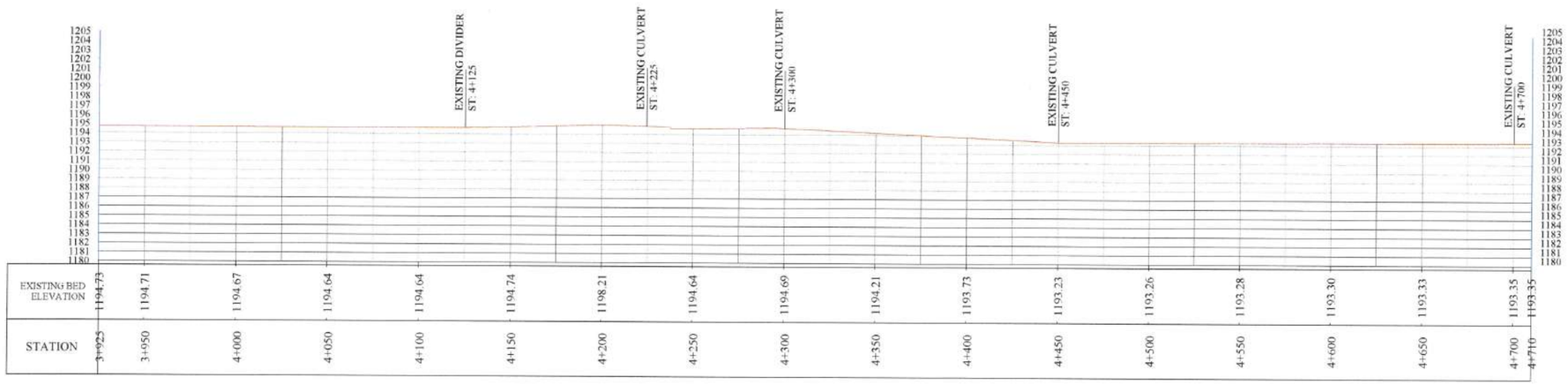
AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (3+140 TO 3+925) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 06 /49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: 01 Sep 2019 | |




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |



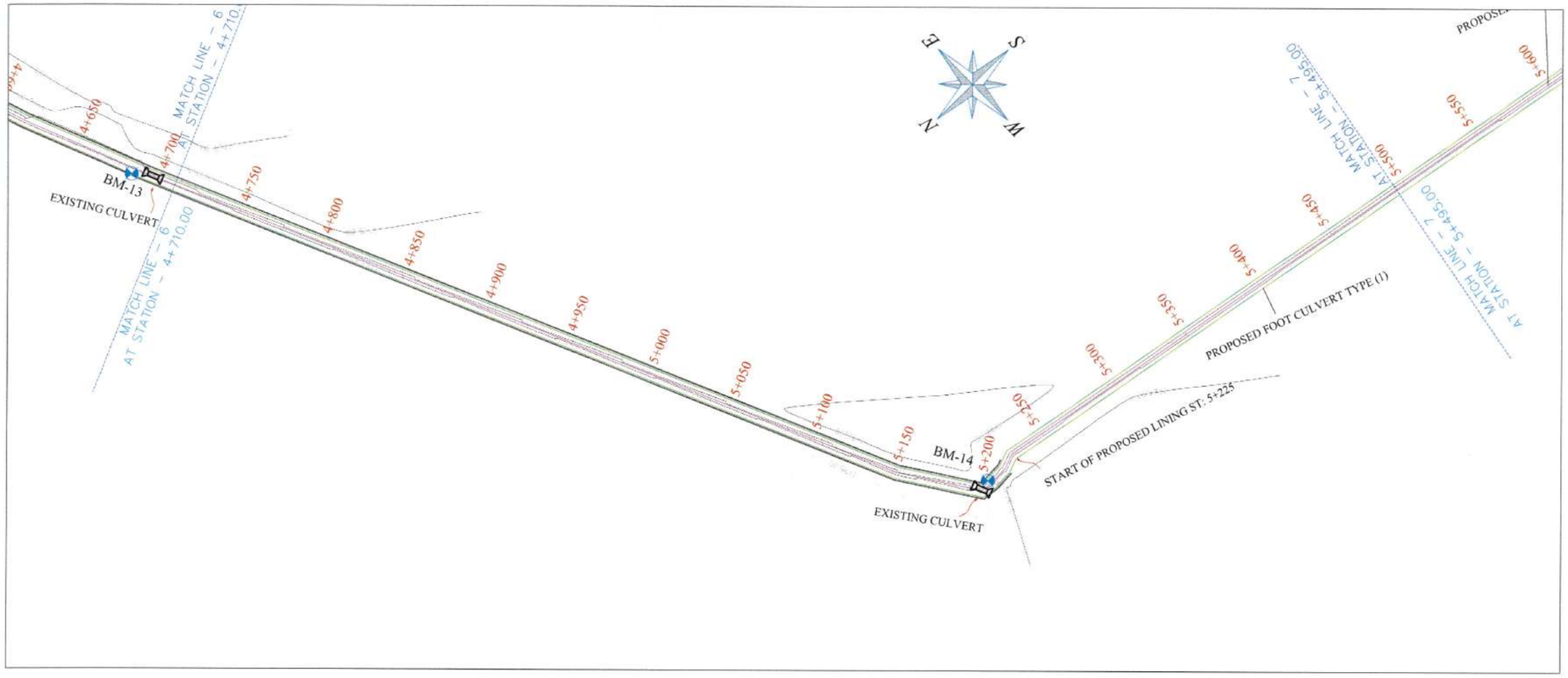

Issued for construction

02 SEP 2017

Strengthening Watershed and Irrigation Management (SWIM)

AECOM

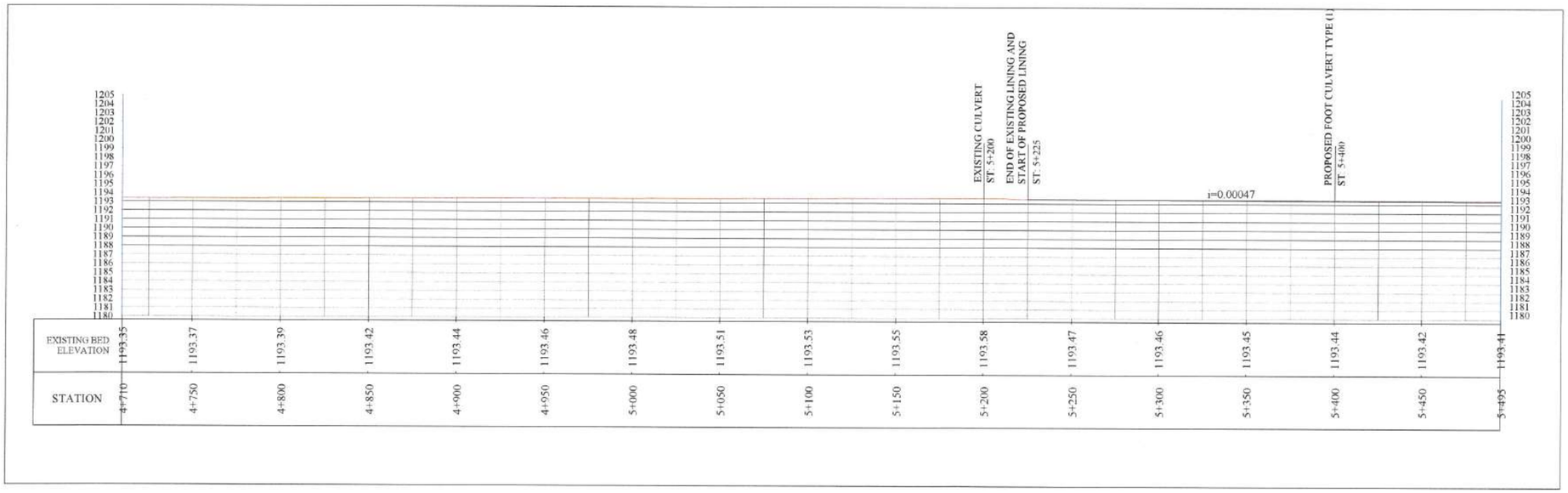
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MIW/RBA APPROVAL | SHEET NO. 07/49 |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (3+925 TO 4+710) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: 01/Sep/2017 | |




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

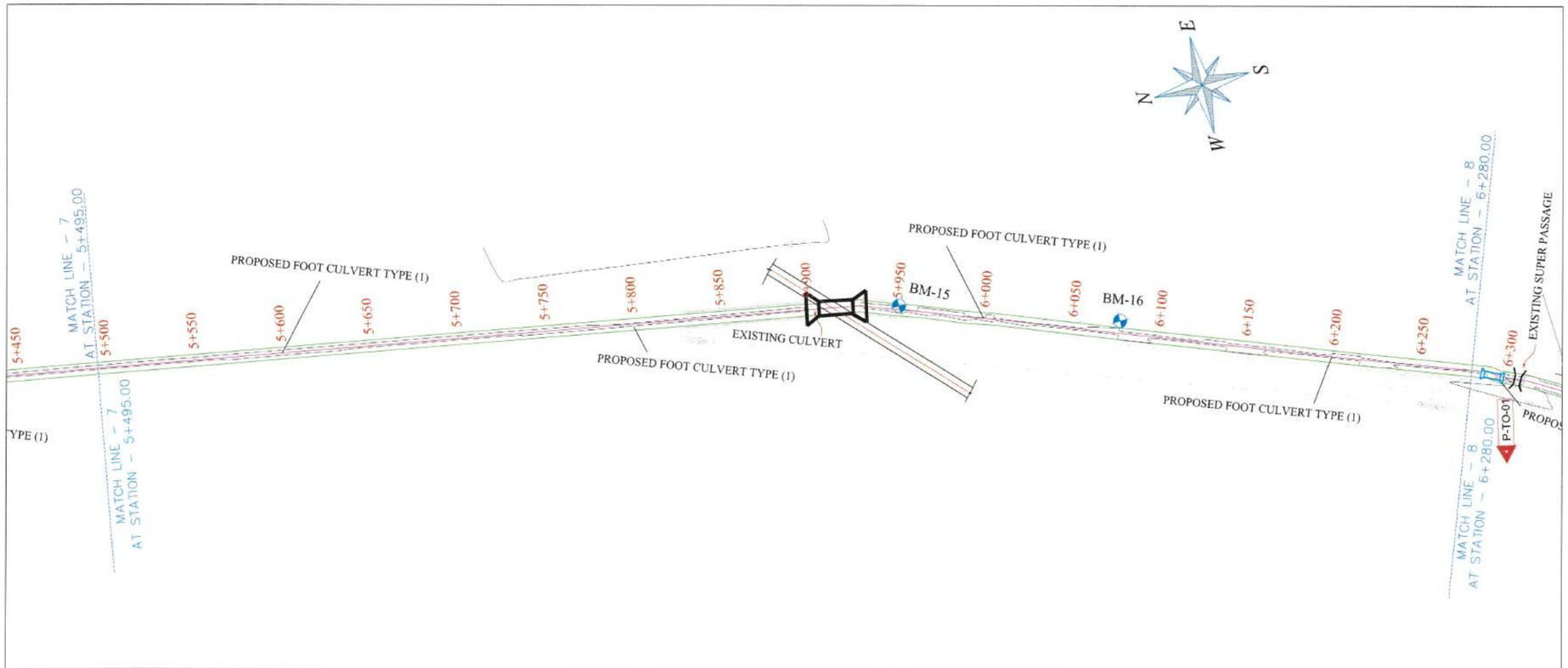
Issued for construction




| STATION | EXISTING BED ELEVATION |
|---|---|
| 4+710 | 1193.35 |
| 4+750 | 1193.37 |
| 4+800 | 1193.39 |
| 4+850 | 1193.42 |
| 4+900 | 1193.44 |
| 4+950 | 1193.46 |
| 5+000 | 1193.48 |
| 5+050 | 1193.51 |
| 5+100 | 1193.53 |
| 5+150 | 1193.55 |
| 5+200 | 1193.58 |
| 5+250 | 1193.47 |
| 5+300 | 1193.46 |
| 5+350 | 1193.45 |
| 5+400 | 1193.44 |
| 5+450 | 1193.42 |
| 5+495 | 1193.41 |

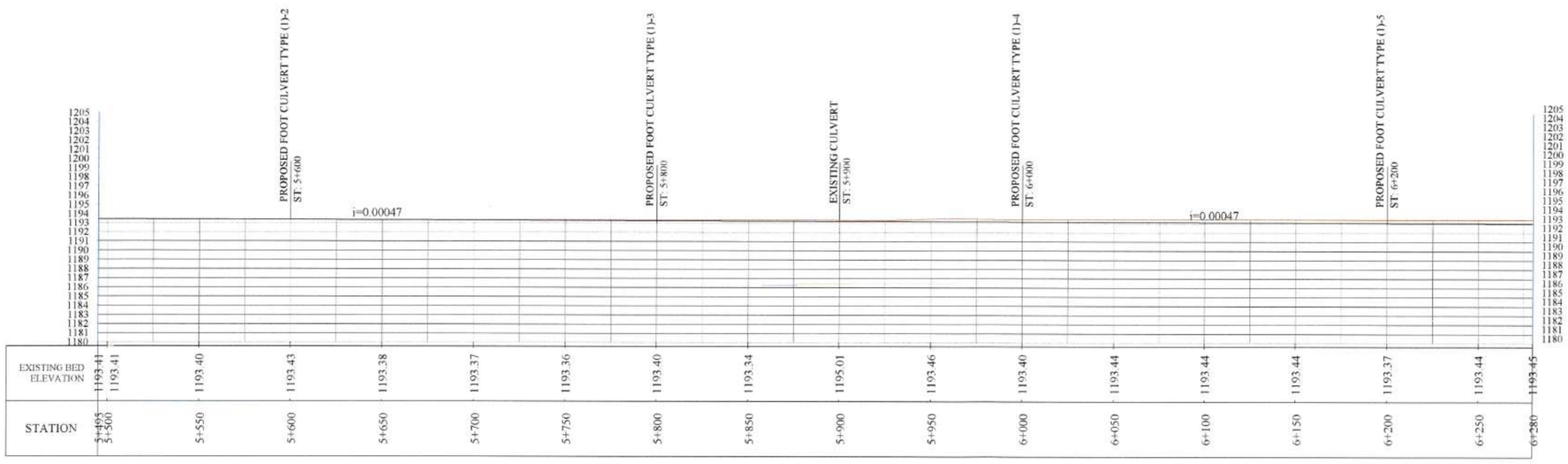
Strengthening Watershed and Irrigation Management (SWIM)
AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (4+710 TO 5+495) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: 1390 of Sep 2019 | 08 /49 |




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |



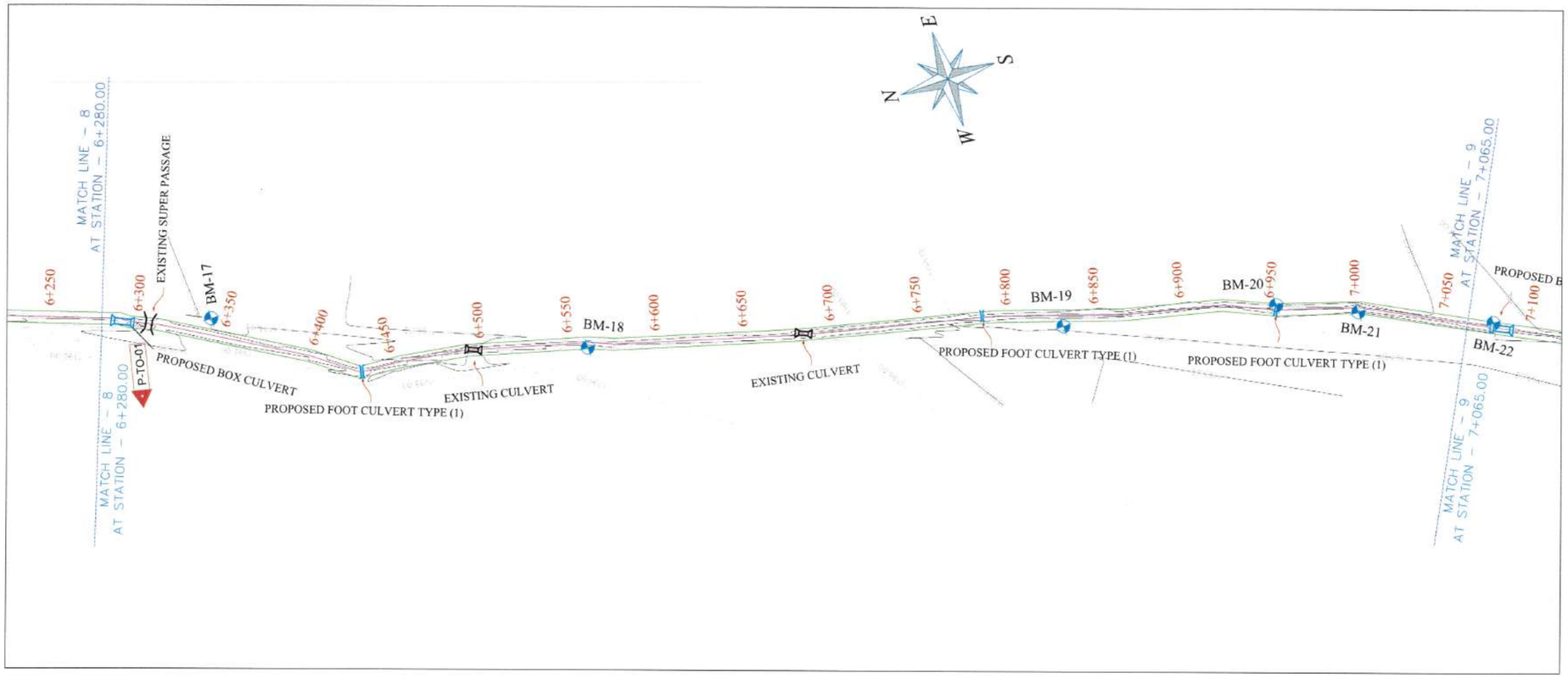

Strengthening Watershed a
Irrigation Management (S W

AECOM

Issued for construction

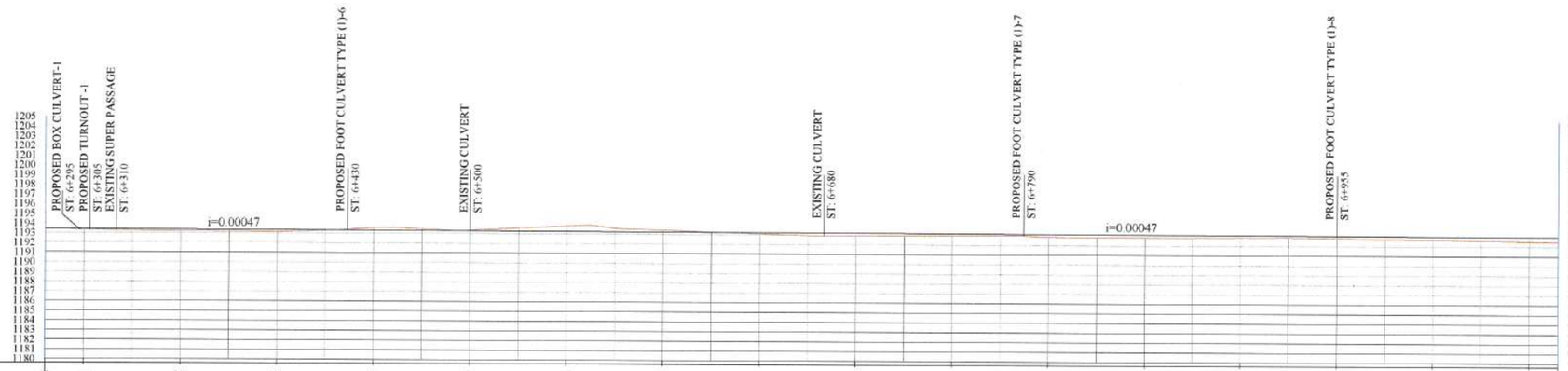
02 SEP 2019

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (5+495 TO 6+280) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | SHEET NO 09/49 |
| | | | | | | DATE: | DATE: | DATE: 14 OCT 2019 | DATE: 01 SEP 2019 |




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




| STATION | EXISTING BED ELEVATION |
|---|---|
| 6+280 | 1193.45 |
| 6+300 | 1193.31 |
| 6+350 | 1193.22 |
| 6+400 | 1193.15 |
| 6+450 | 1193.57 |
| 6+500 | 1193.34 |
| 6+550 | 1193.84 |
| 6+600 | 1193.42 |
| 6+650 | 1193.11 |
| 6+700 | 1192.92 |
| 6+750 | 1192.96 |
| 6+800 | 1192.88 |
| 6+850 | 1192.84 |
| 6+900 | 1192.88 |
| 6+950 | 1192.83 |
| 7+000 | 1192.69 |
| 7+050 | 1192.54 |
| 7+065 | 1192.50 |

Issued for construction

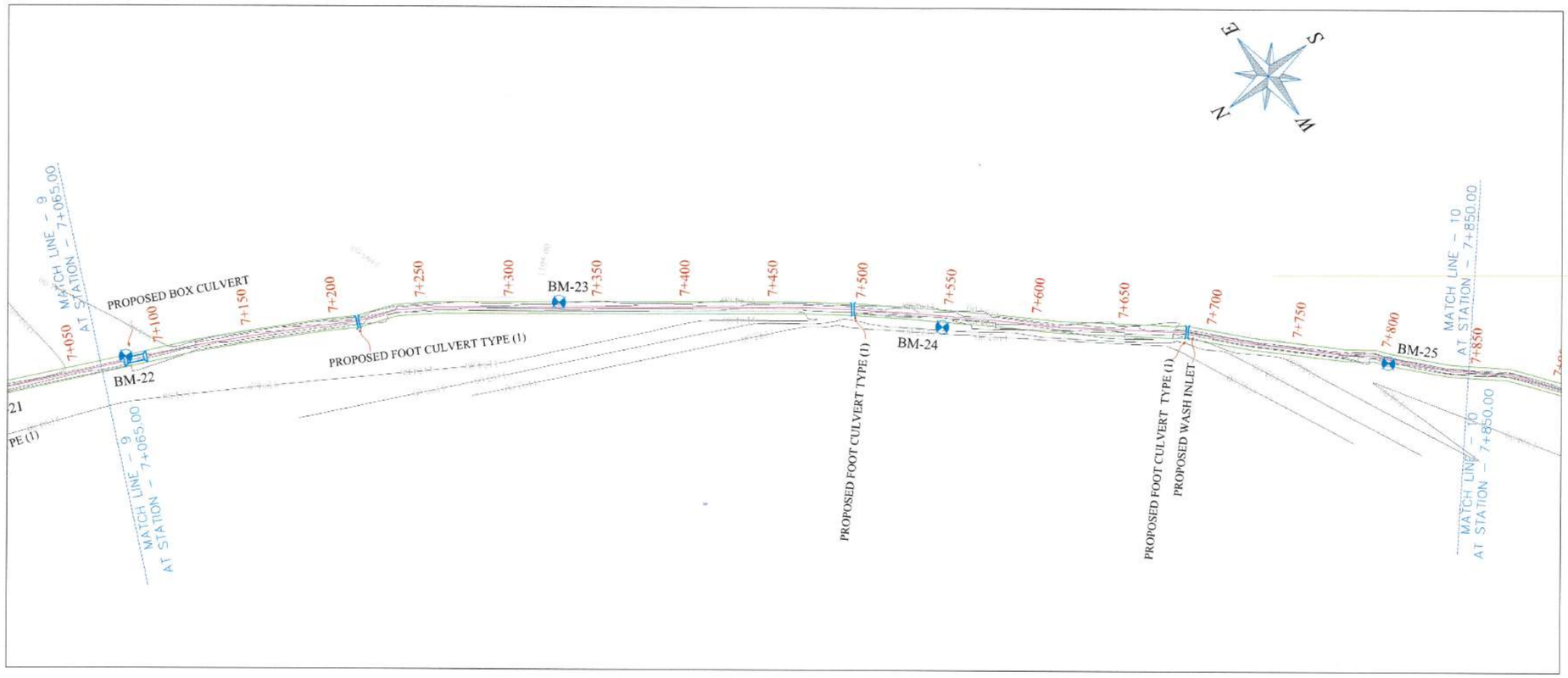
02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)

AECOM

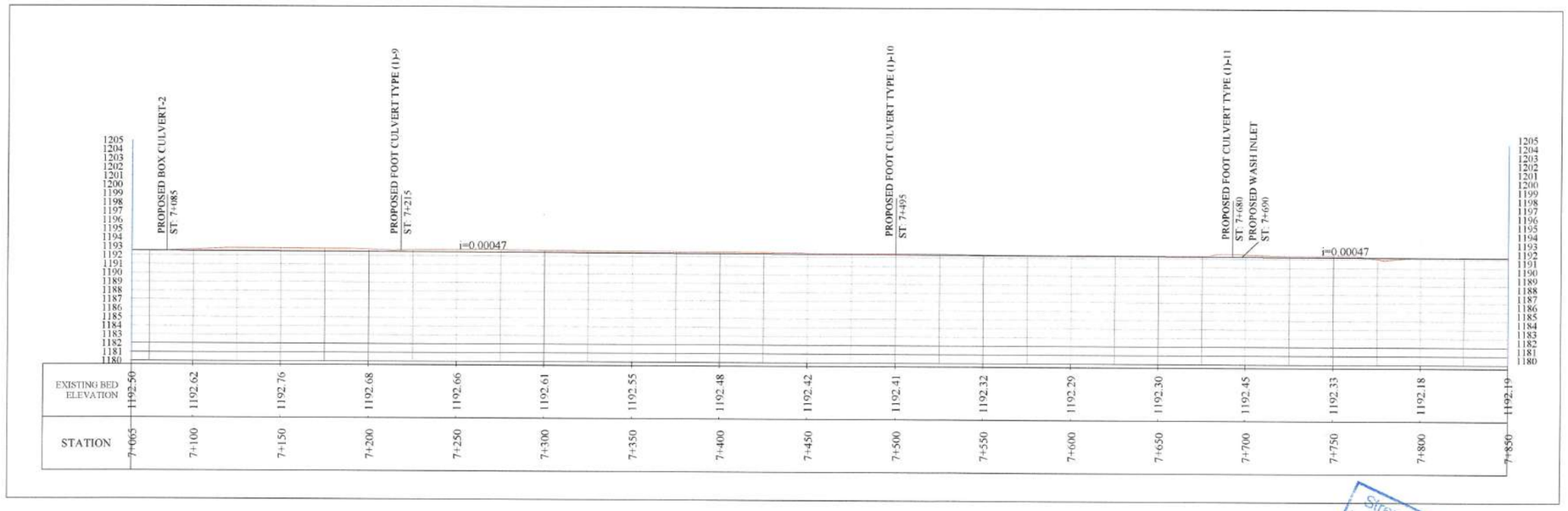
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (6+280 TO 7+065) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: 05 SEP 2019 | SHEET NO. 10 / 49 |

Ministry of Energy & Water




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




Issued for construction

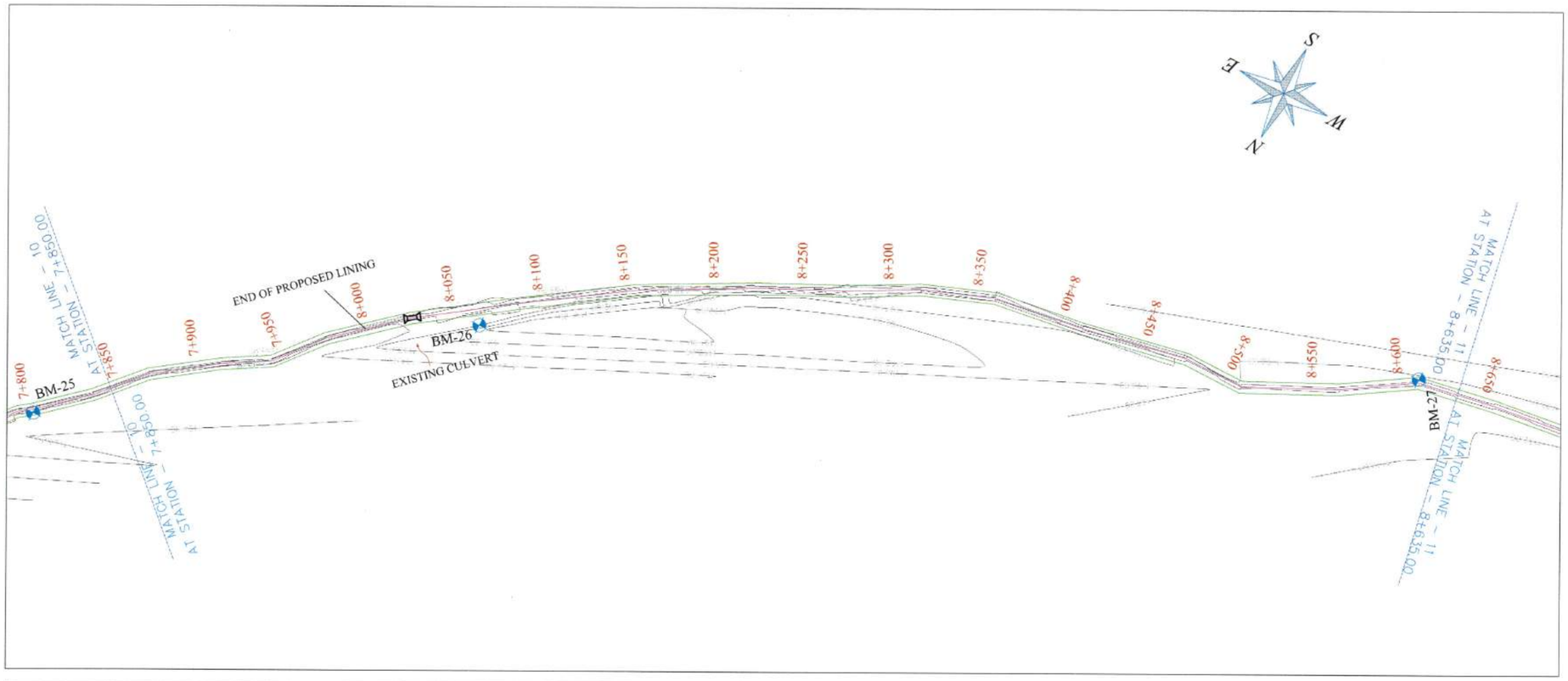
02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. 11 /49 |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (7+065 TO 7+850) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HOPPY MAZIER CHIEF OF PARTY | | |
| | | | | | | DATE: | DATE: | DATE: 8/9/19 | DATE: | |

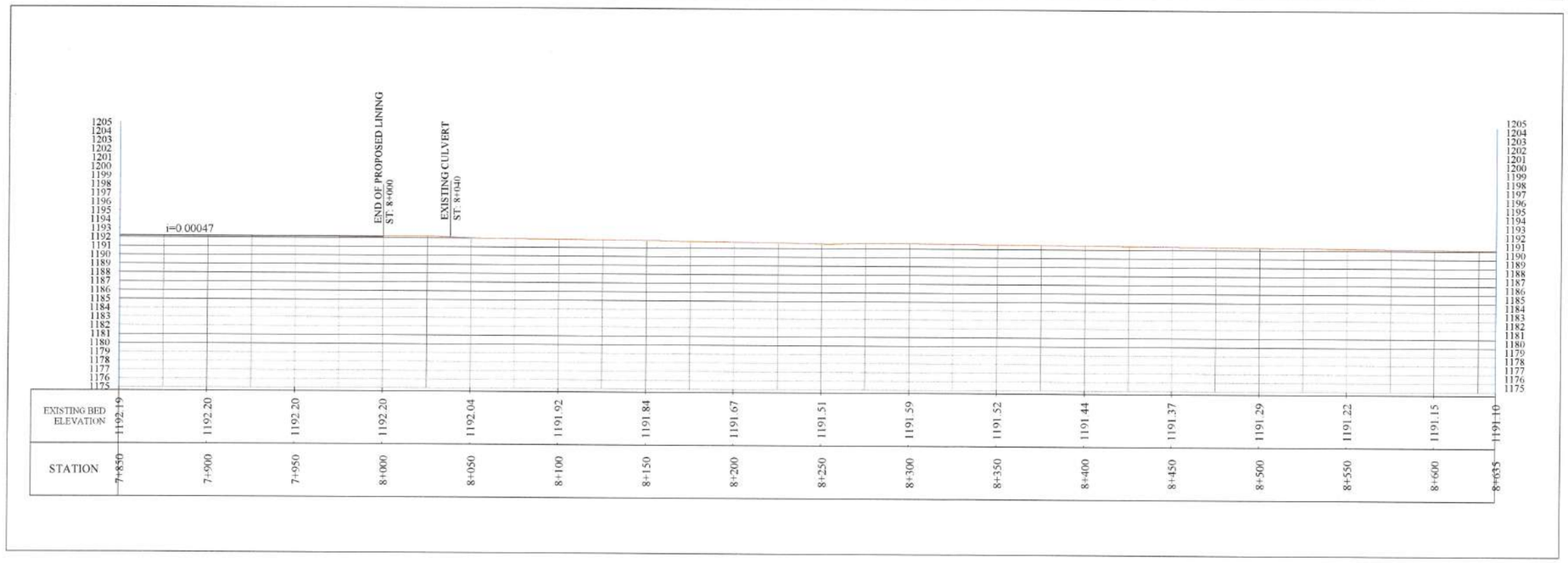
Strengthening Watershed and Irrigation Management (SWIM) AECOM

02 SEP 2019




## LEGEND:-

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




Issued for construction

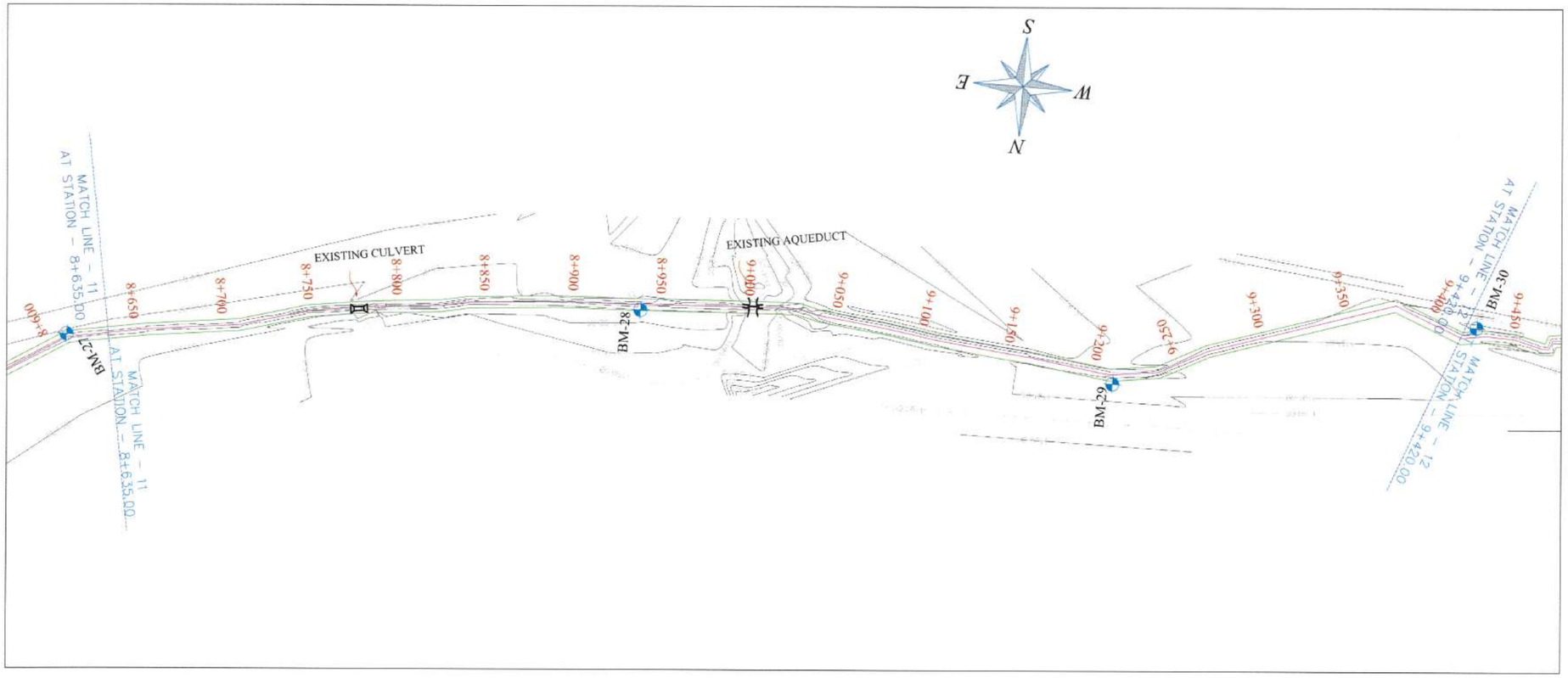
02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)

AECOM

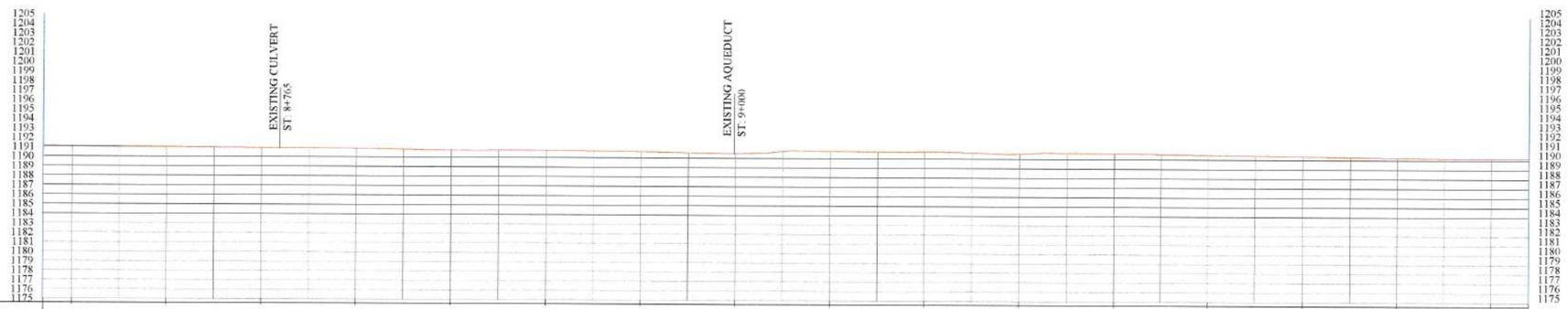
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (7+850 TO 8+035) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: | 12 / 49 |

01 Sep 2019




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




| STATION | EXISTING BED ELEVATION |
|---|---|
| 8+635 | 1191.10 |
| 8+650 | 1191.07 |
| 8+700 | 1191.00 |
| 8+750 | 1190.93 |
| 8+800 | 1190.86 |
| 8+850 | 1190.75 |
| 8+900 | 1190.77 |
| 8+950 | 1190.63 |
| 9+000 | 1190.46 |
| 9+050 | 1190.74 |
| 9+100 | 1190.72 |
| 9+150 | 1190.52 |
| 9+200 | 1190.59 |
| 9+250 | 1190.48 |
| 9+300 | 1190.36 |
| 9+350 | 1190.24 |
| 9+400 | 1190.17 |
| 9+420 | 1190.18 |

Issued for construction

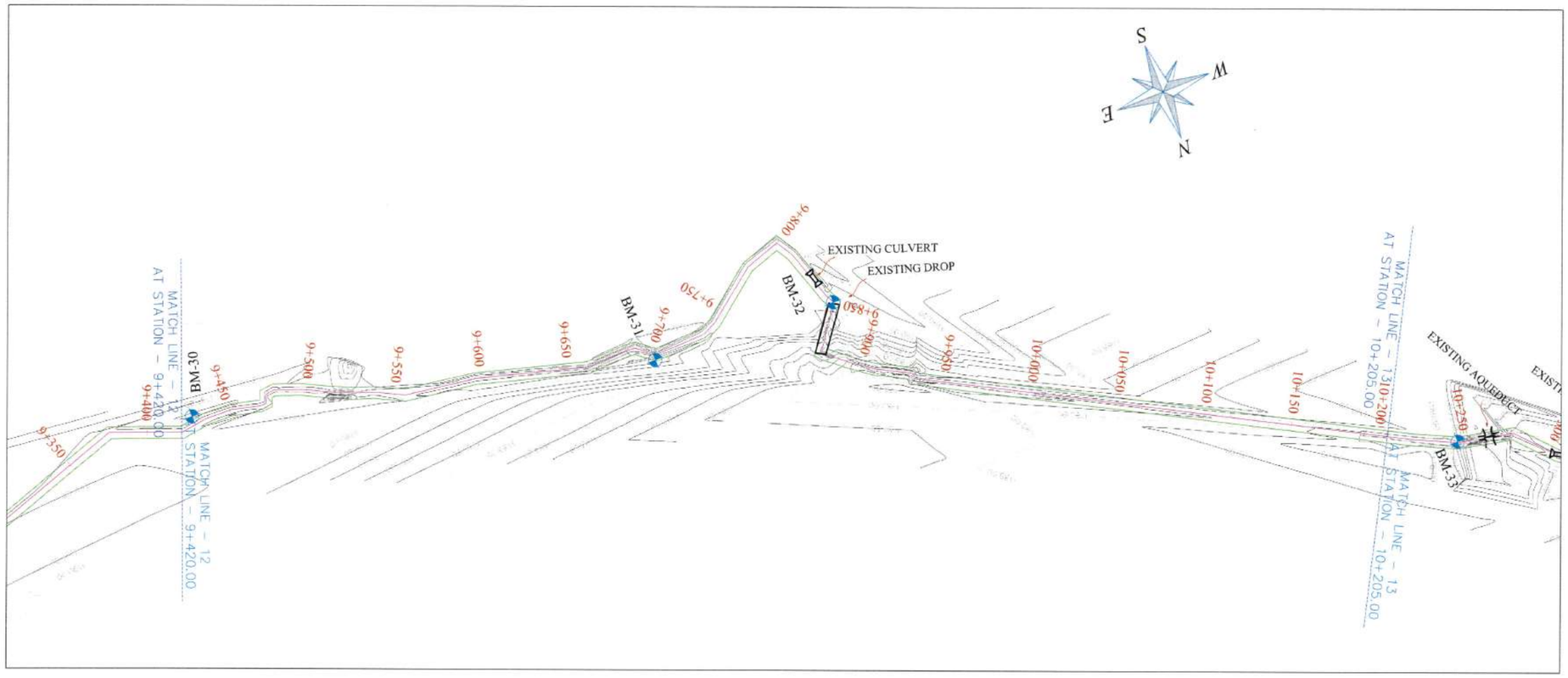
02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (8+035 TO 9+420) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO 13 / 49 |
| | | | | | | DATE: | DATE: | DATE: | DATE: | |

14 JUL 2019

Ministry of Energy & Water
Directorate of Water Resources Basin




**LEGEND:-**

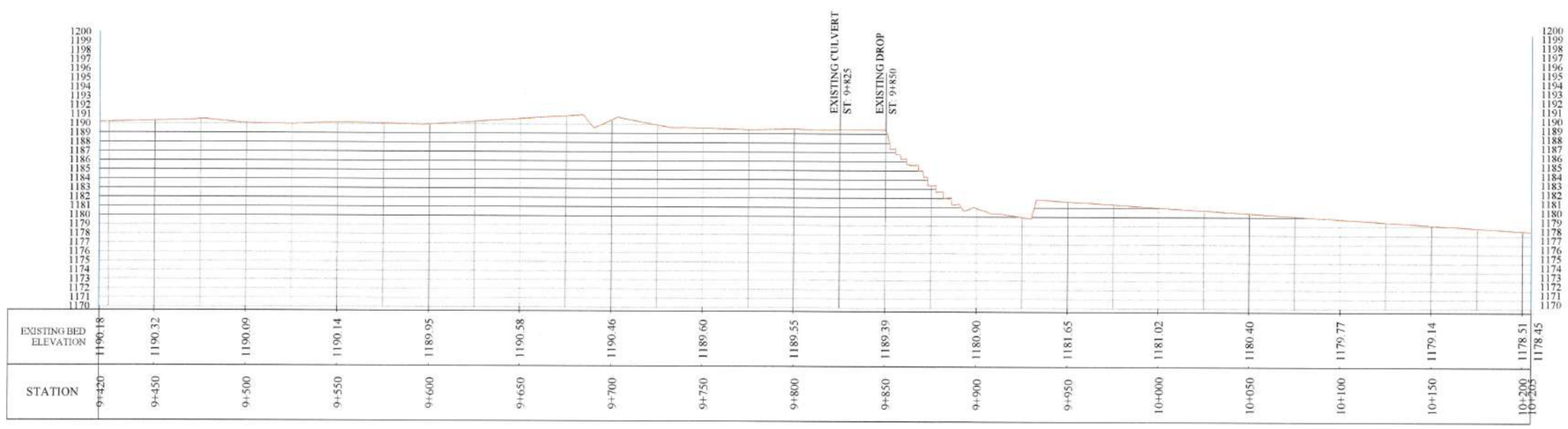
| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for construction

02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)

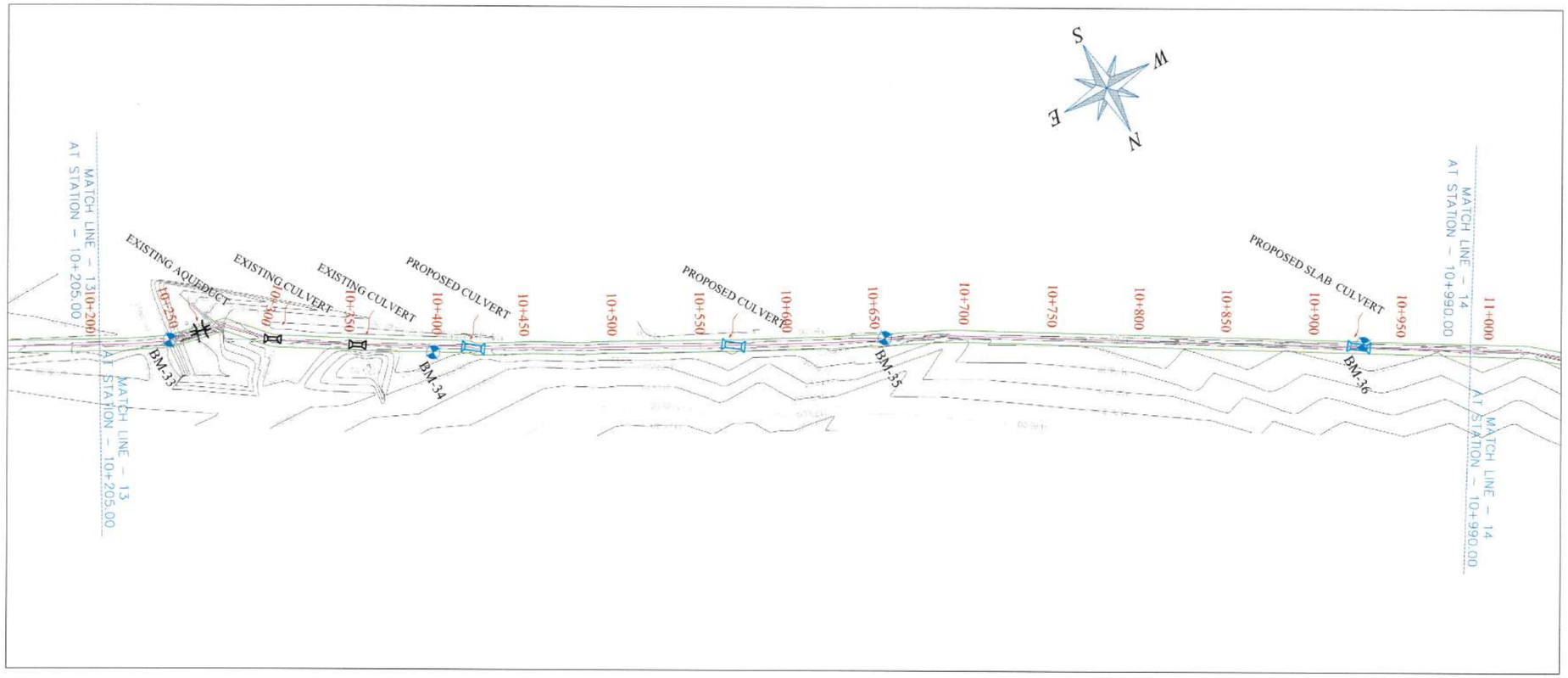
AECOM




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL |
| | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | PLAN AND PROFILE<br>STATION: (9+420 TO 10+205) | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI<br>ACTING CHIEF OF PARTY | SHEET NO.<br>14/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: |

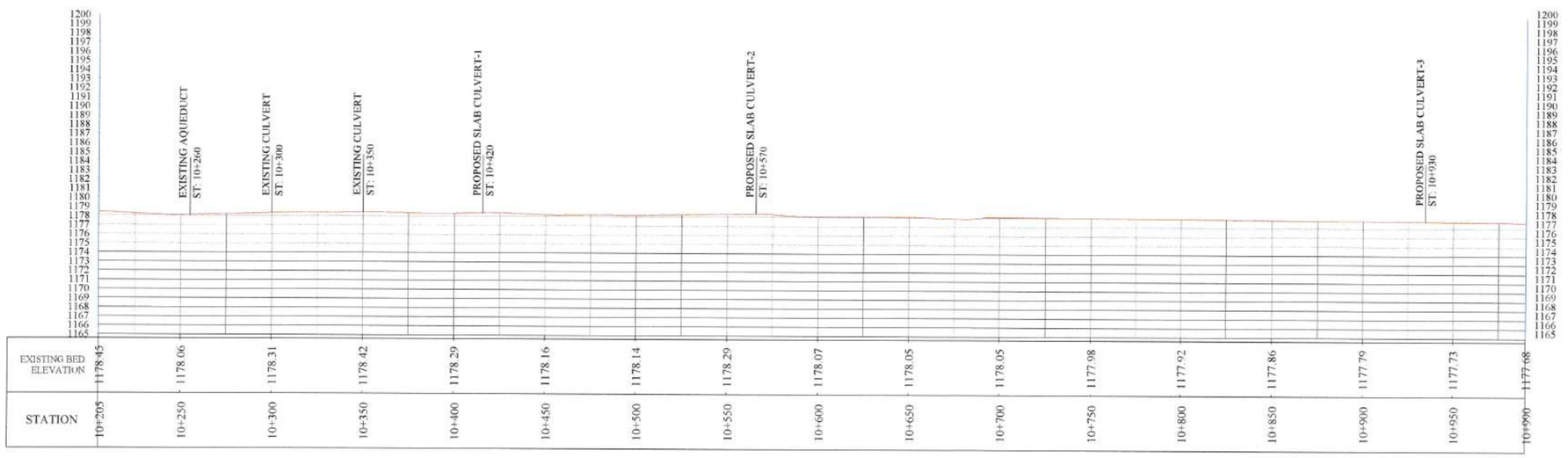
Ministry of Energy and Water
Directorate of Panj-Amo River Basin
2012

20 2019




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




Issued for construction

02 SEP 2019

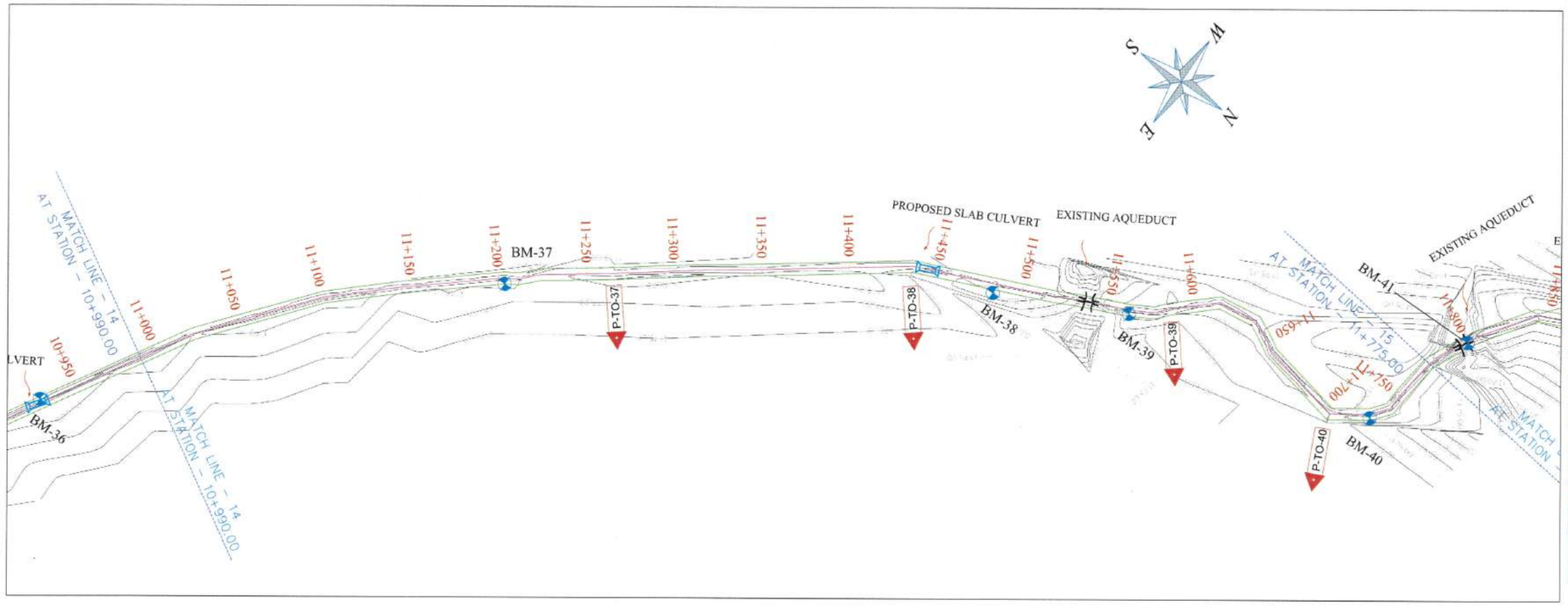
Strengthening Watershed and Irrigation Management (SWIM)

AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW, RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | PLAN AND PROFILE<br>STATION: (10+205 TO 10+990) | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST)<br>DATE: | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR<br>DATE: | HORTENSIA YIDAURI<br>ACTING CHIEF OF PARTY<br>DATE: | DATE: | SHEET NO. 15 /49 |

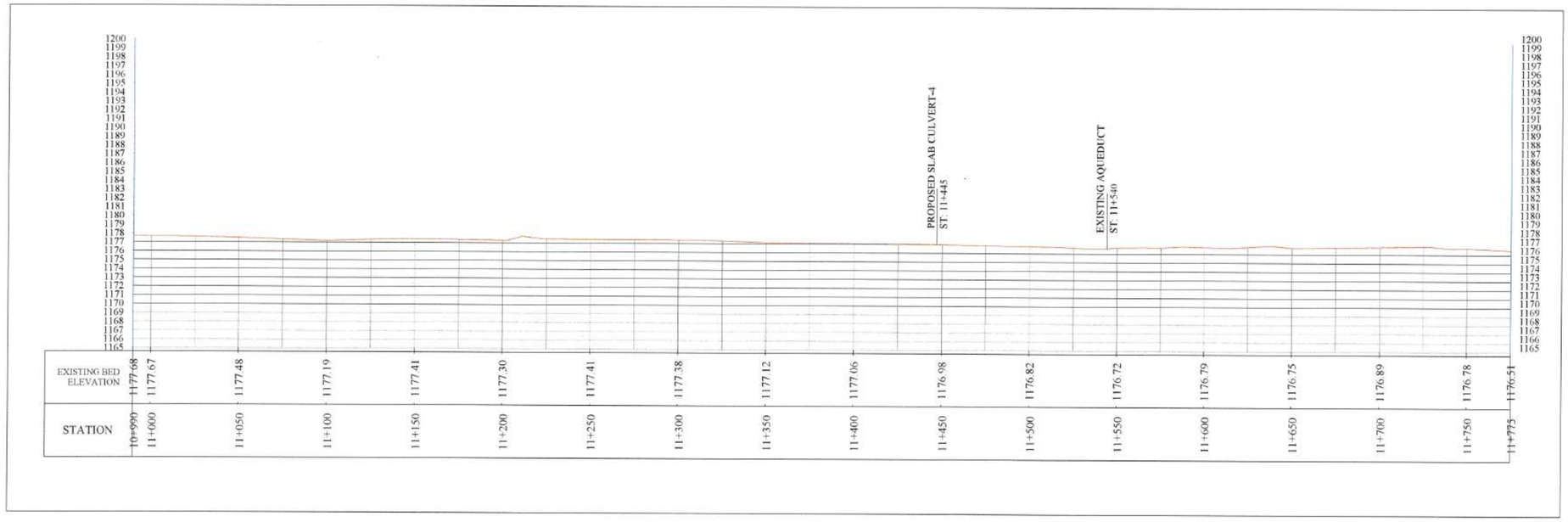
14 JUL 2019

24 SEP 2019




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




Issued for construction

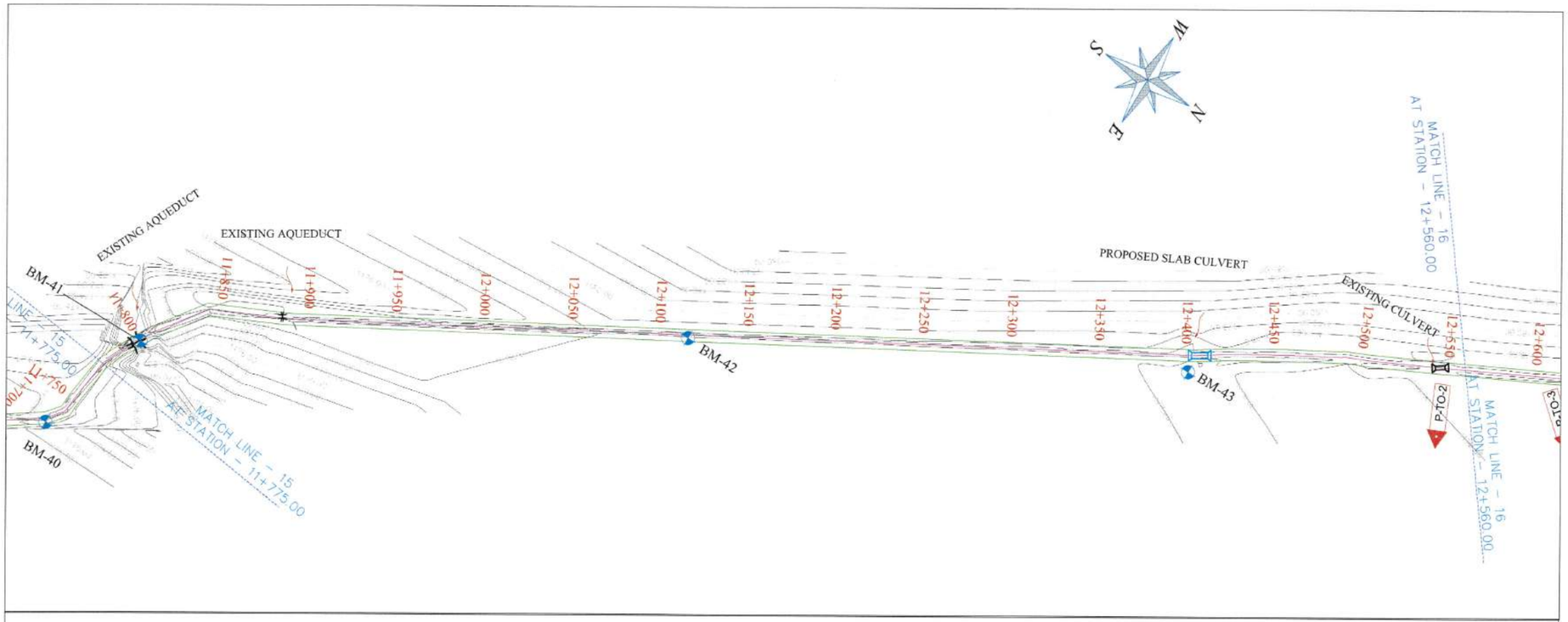
02 SEP 2013

Strengthening Watershed and Irrigation Management (SWIM)

AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (10+990 TO 11+775) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 16 /49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2013 | DATE: | |

Ministry of Energy and Water



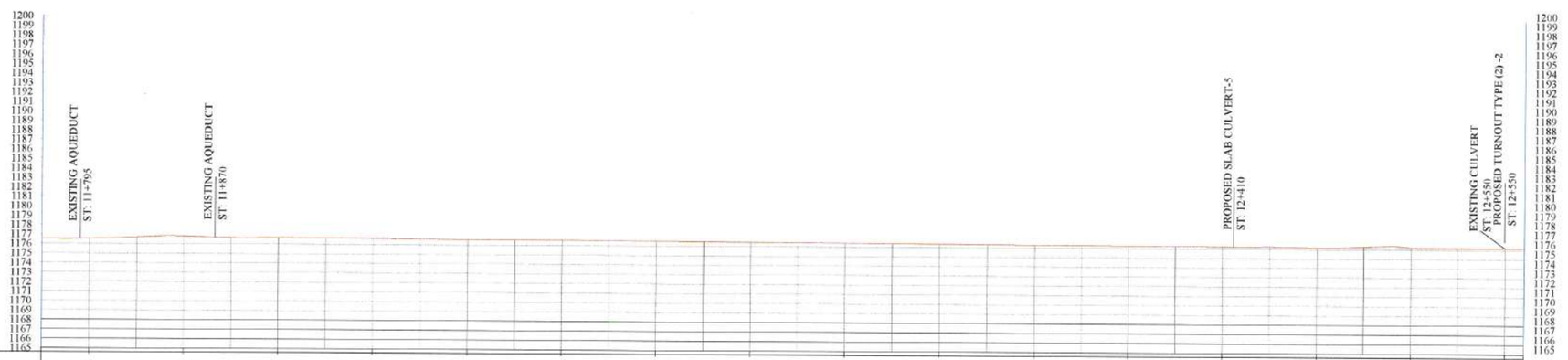

**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for construction

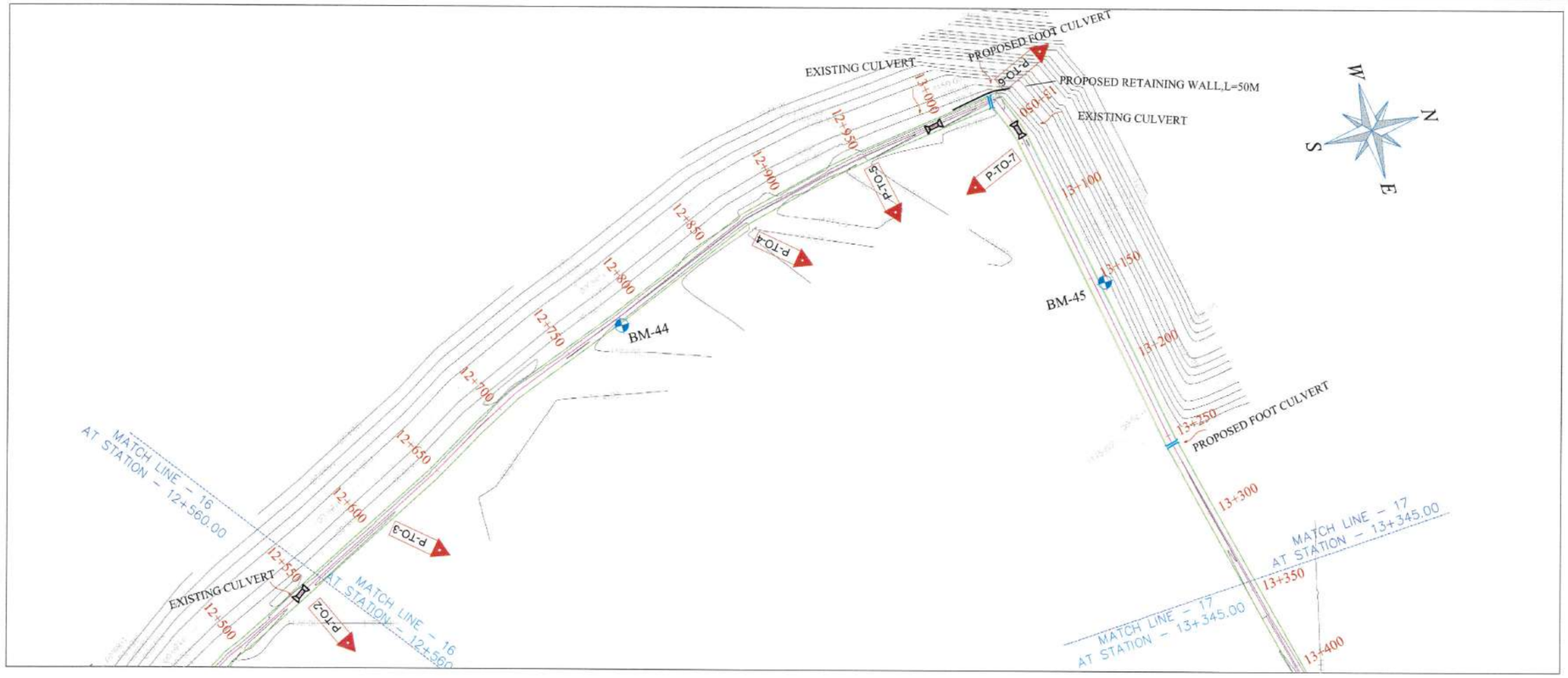
02 SEP 2019

AECOM
Strengthening Watershed and Irrigation Management(SWIM)




| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (11+775 TO 12+560) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 17 /49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

SEP 2019



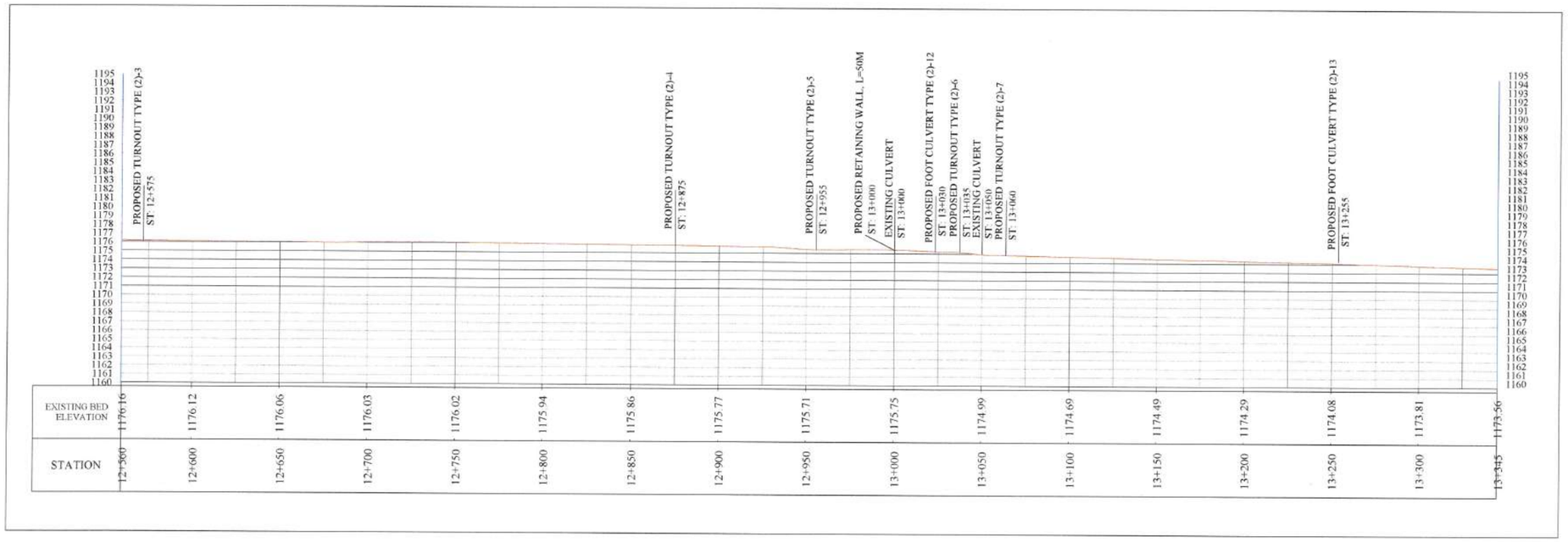

**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for construction

Strengthening Watershed and Irrigation Management (SWIM)

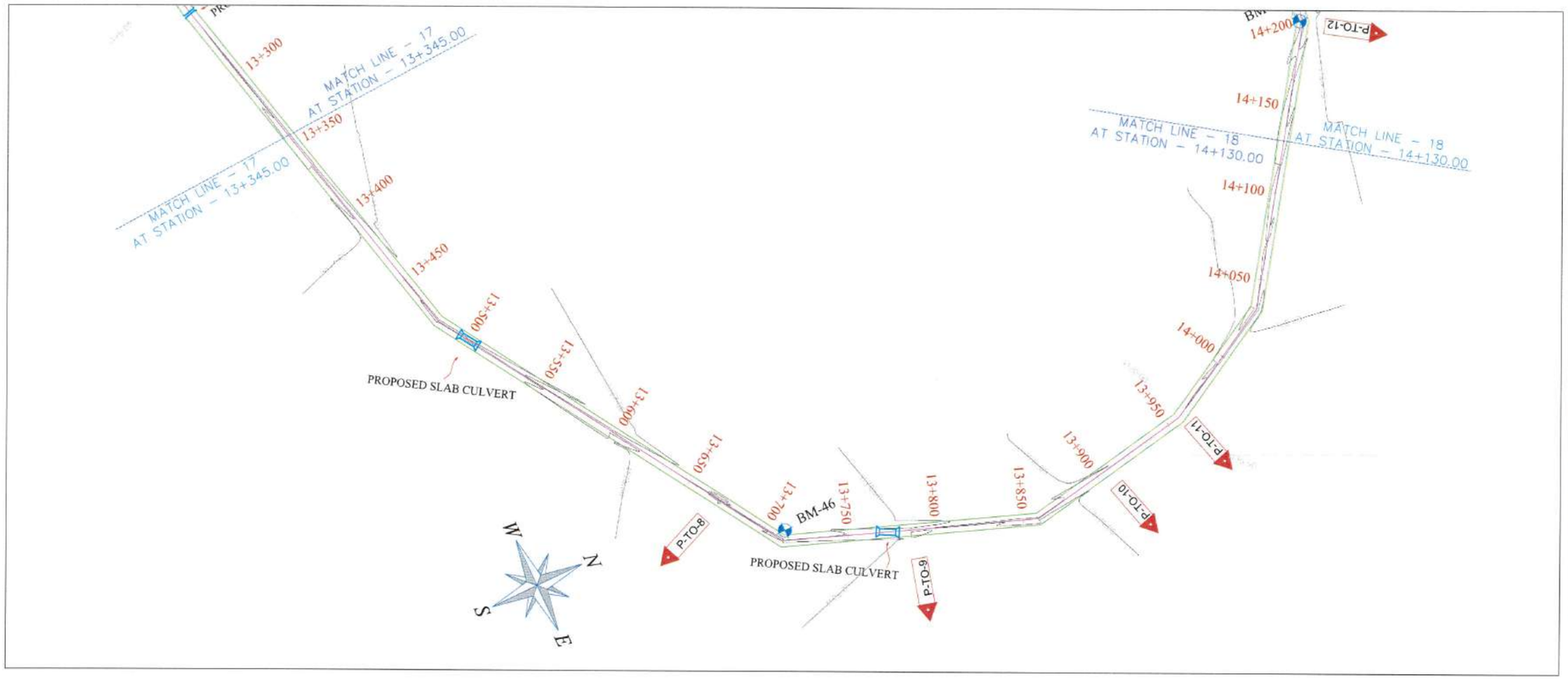
AECOM




| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | PLAN AND PROFILE<br>STATION: (12+560 TO 13+345) | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST)<br>DATE: | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR<br>DATE: | HORTENSIA VIDAURI<br>ACTING CHIEF OF PARTY<br>DATE: 14 JUL 2019 | DATE: | 18 /49 |

Directorate of Panj-Amu River Basin

8eB 2019




**LEGEND:-**

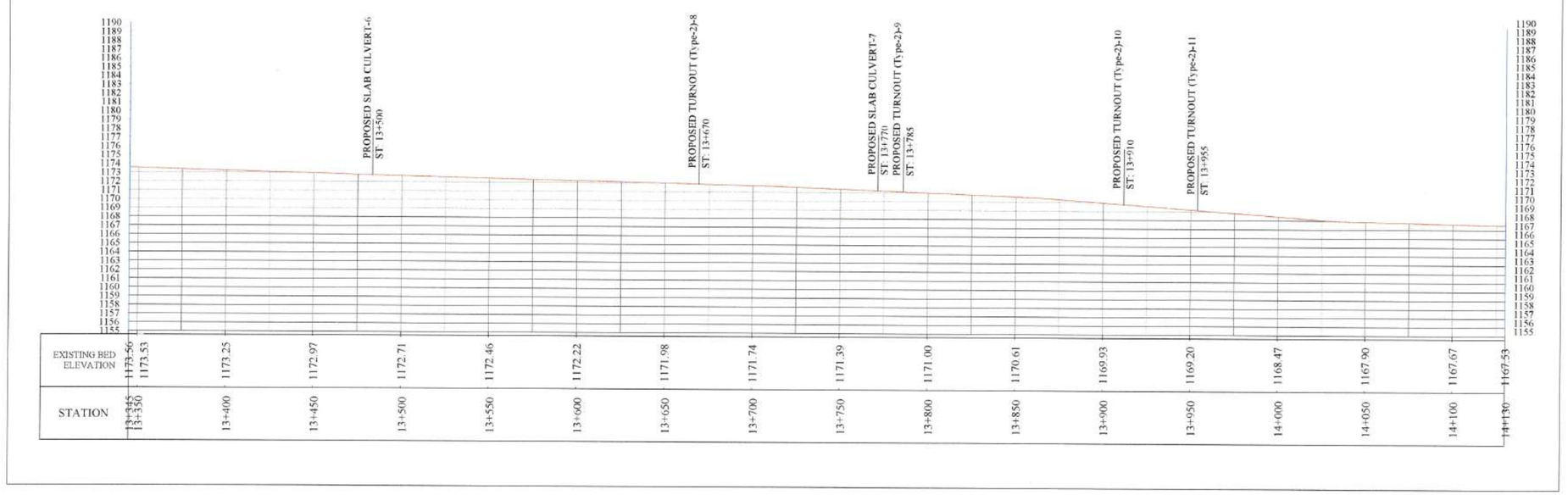
| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for Construction

02 SEP 2019

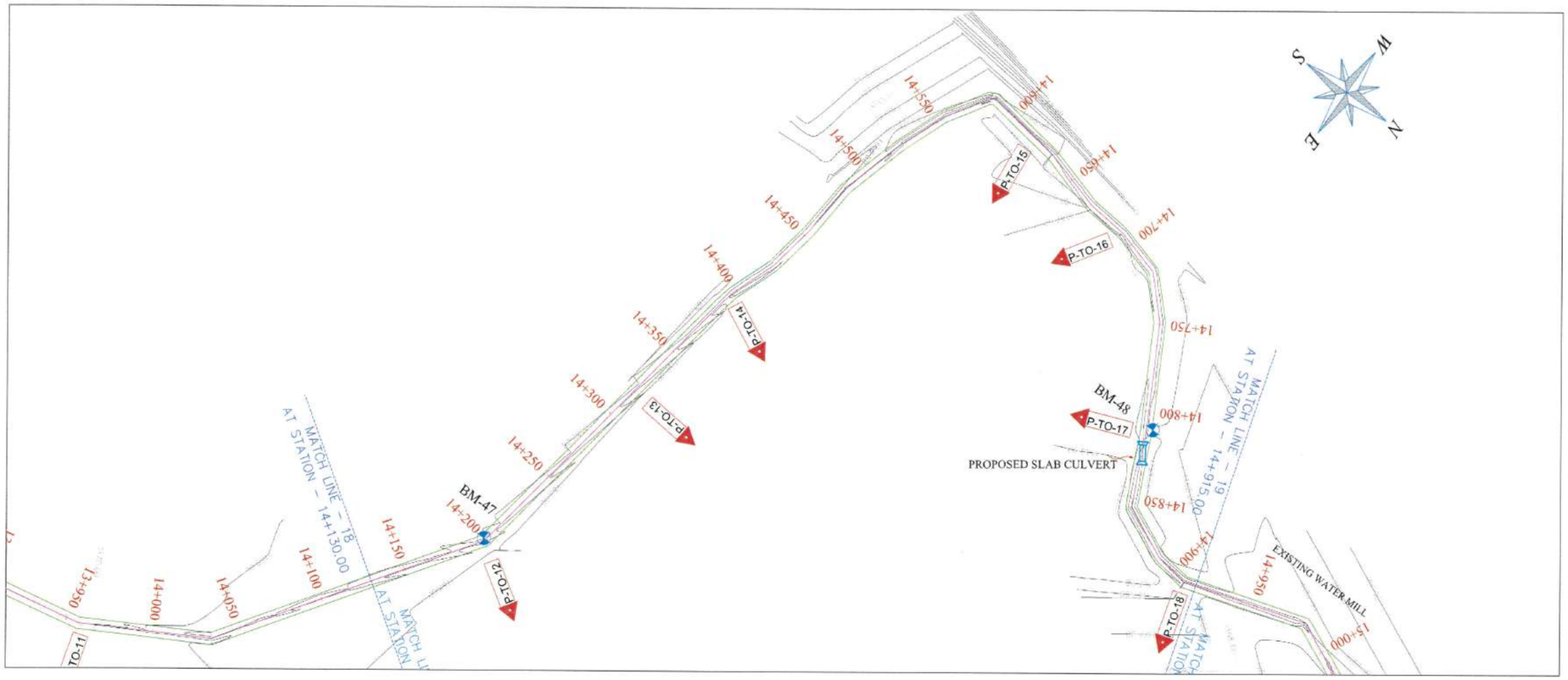
Strengthening Watershed and Irrigation Management (SWIM)

AECOM




| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (13+345 TO 14+130) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 19 /49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Sep 2019




## LEGEND:-

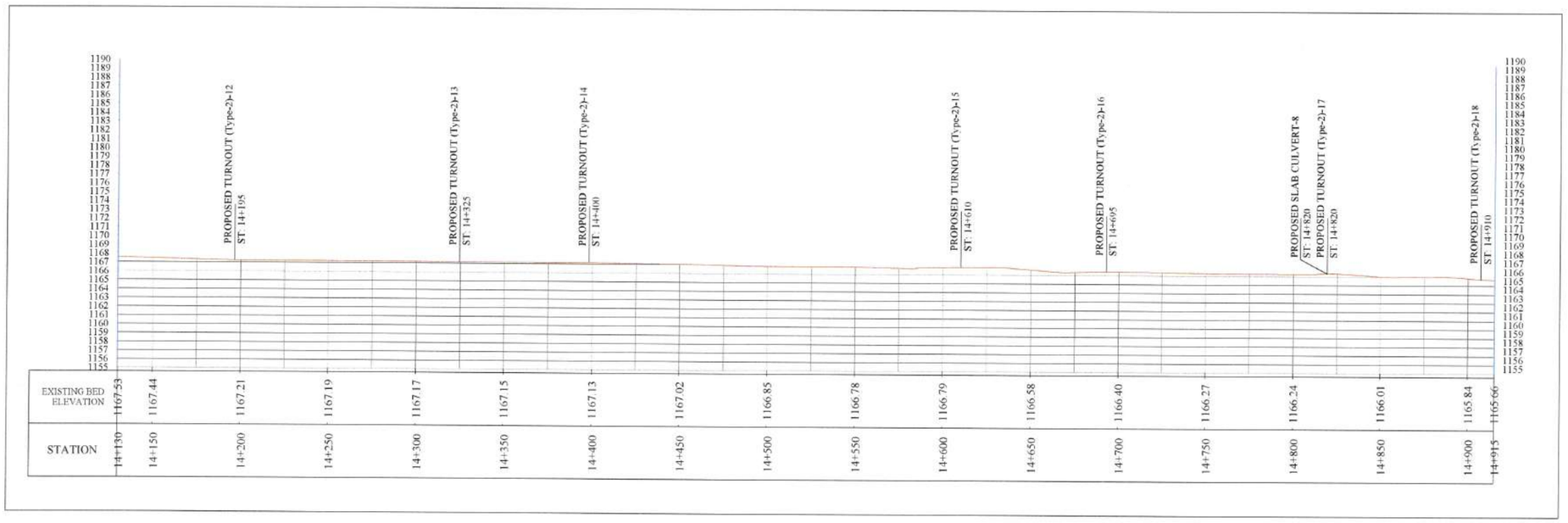
| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

Issued for construction

02 SEP 2017

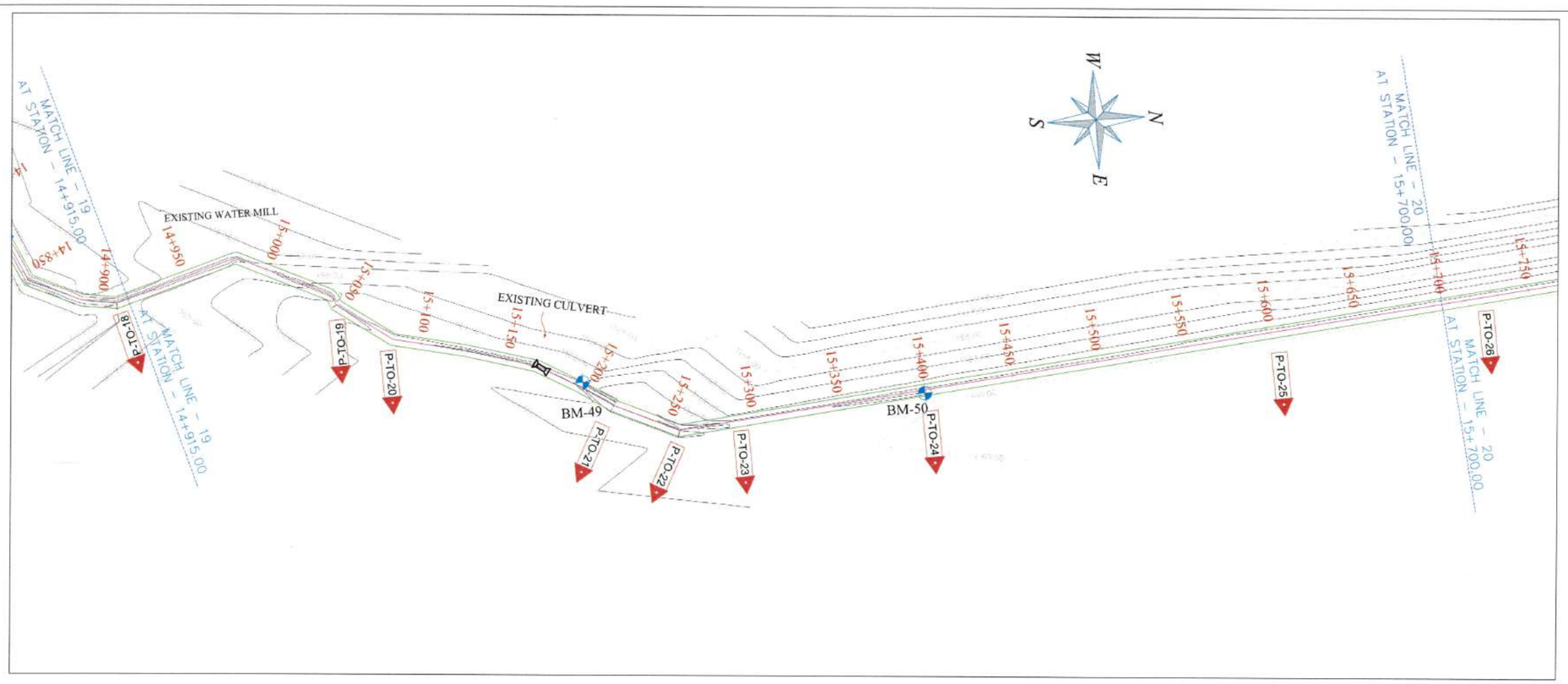
Strengthening Watershed and Irrigation Management (SWIM)

AECOM



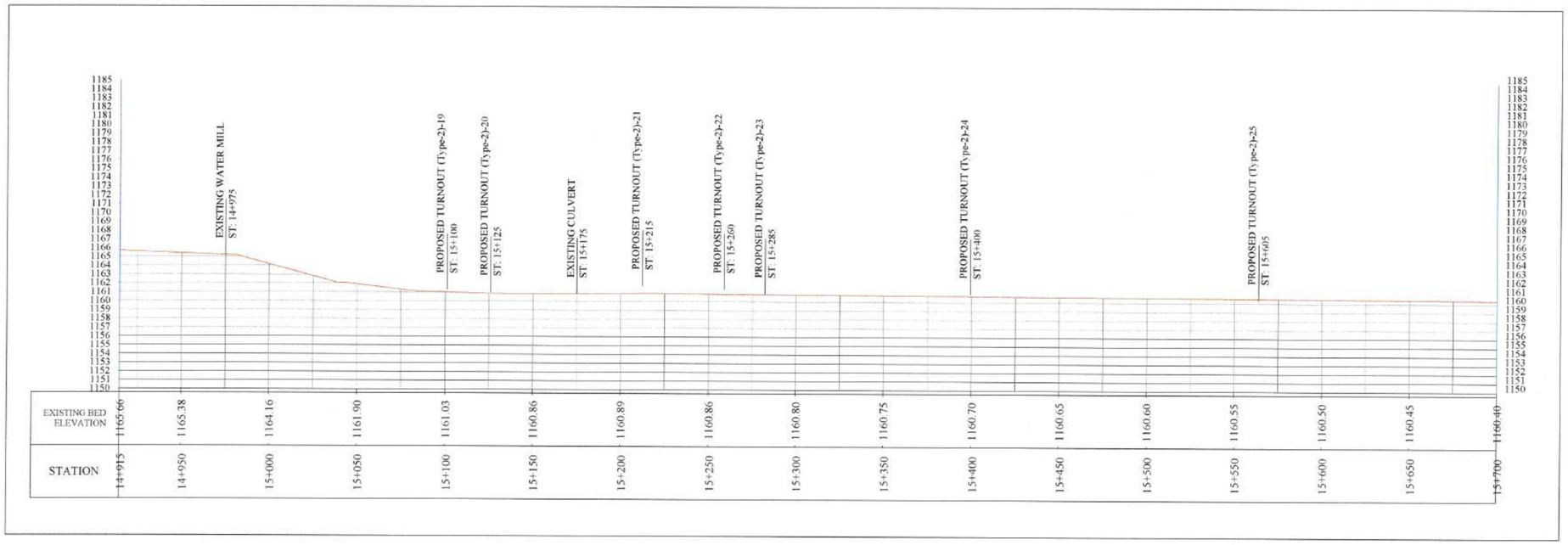

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL | |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (14+130 TO 14+915) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 20 /49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Sep 2019




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |



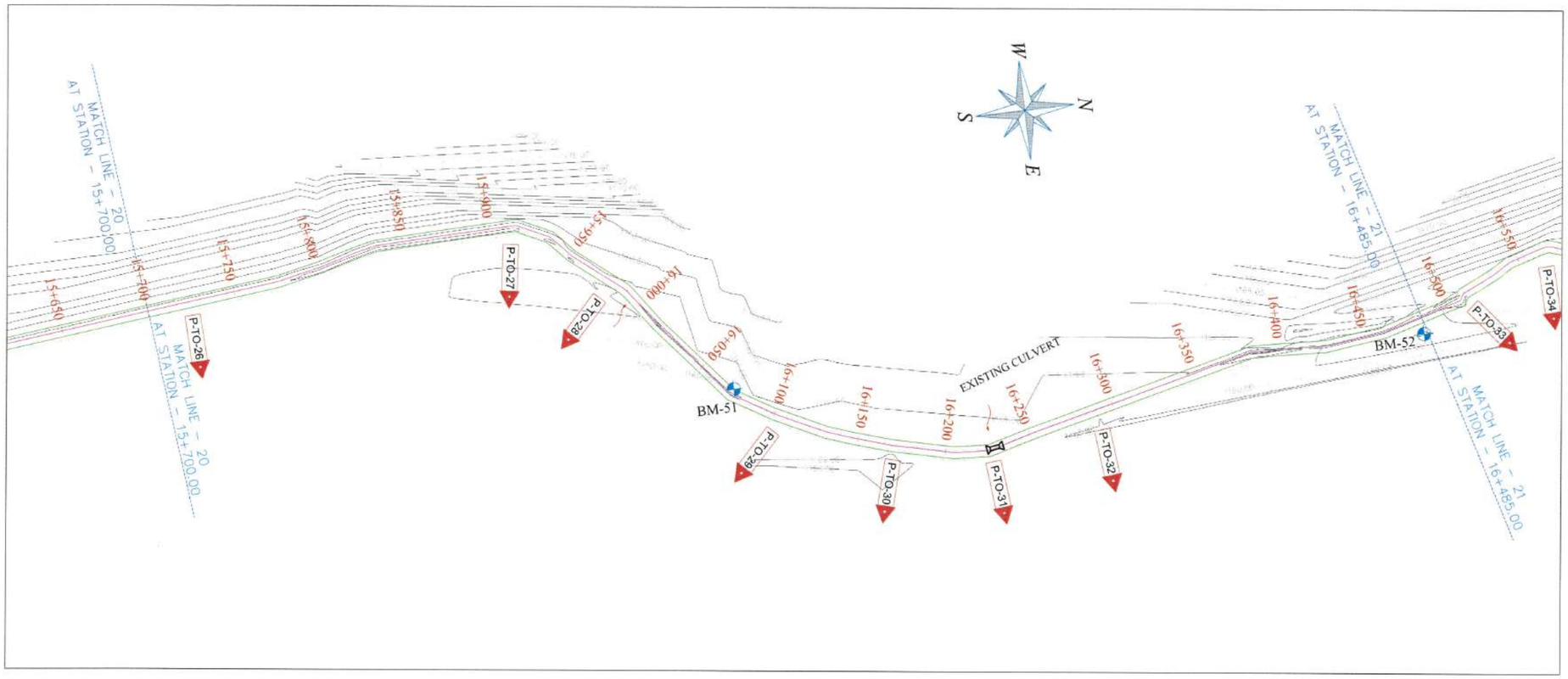

Issued for construction

02 SEP 2019

Strengthening Watershed and Irrigation Management (SWIM)

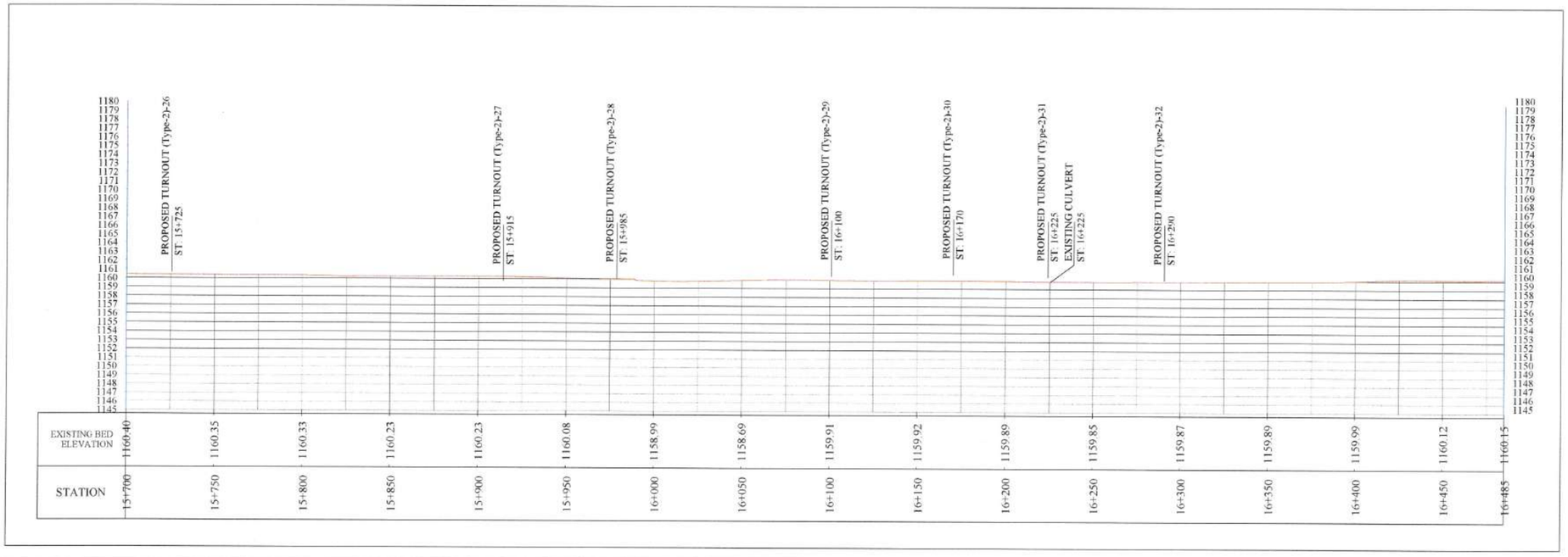
AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (14+915 TO 15+700) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIROMMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: Sep 2019 | 21/49 |




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




Issued for construction

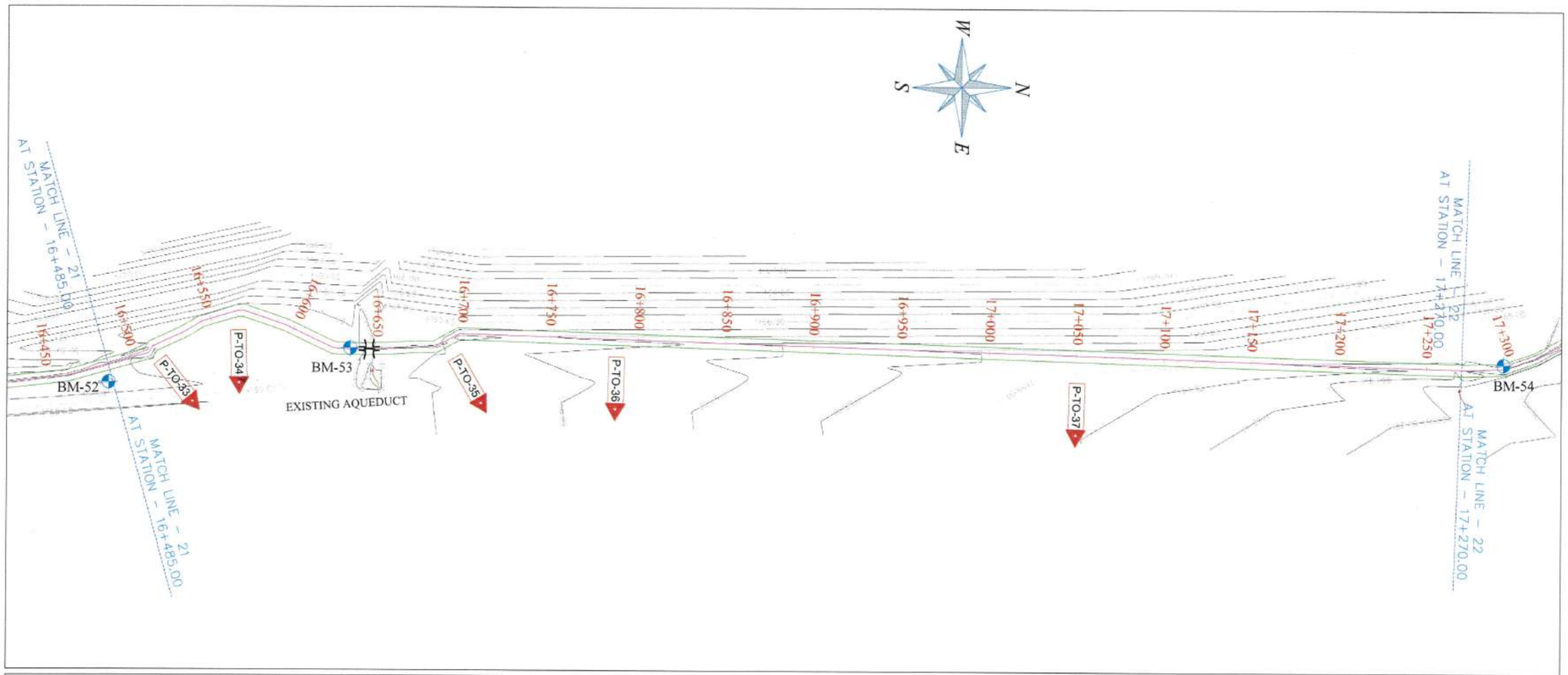
02 SEP 2011

Strengthening Watershed and Irrigation Management (SWIM)

AECOM

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (15+700 TO 16+485) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURRE ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: | 22/49 |

Ministry of Agriculture, Irrigation & Livestock
Directorate of Paid-Amo Fu...
SEP 2019

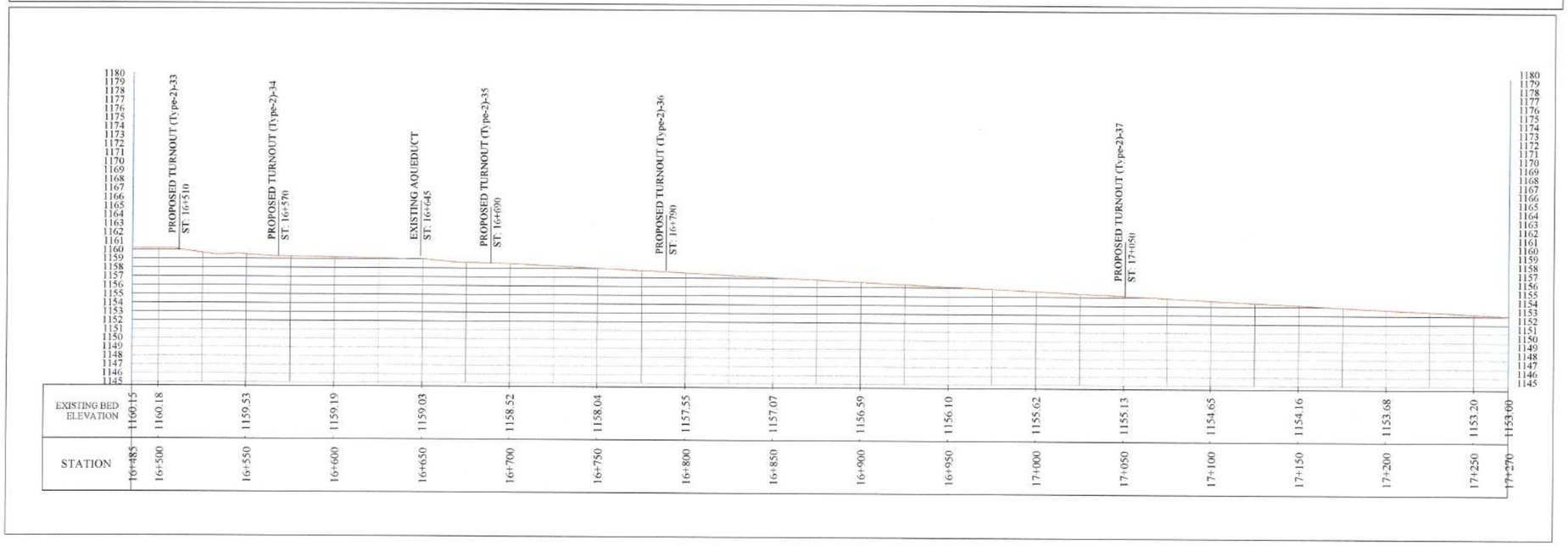



**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |

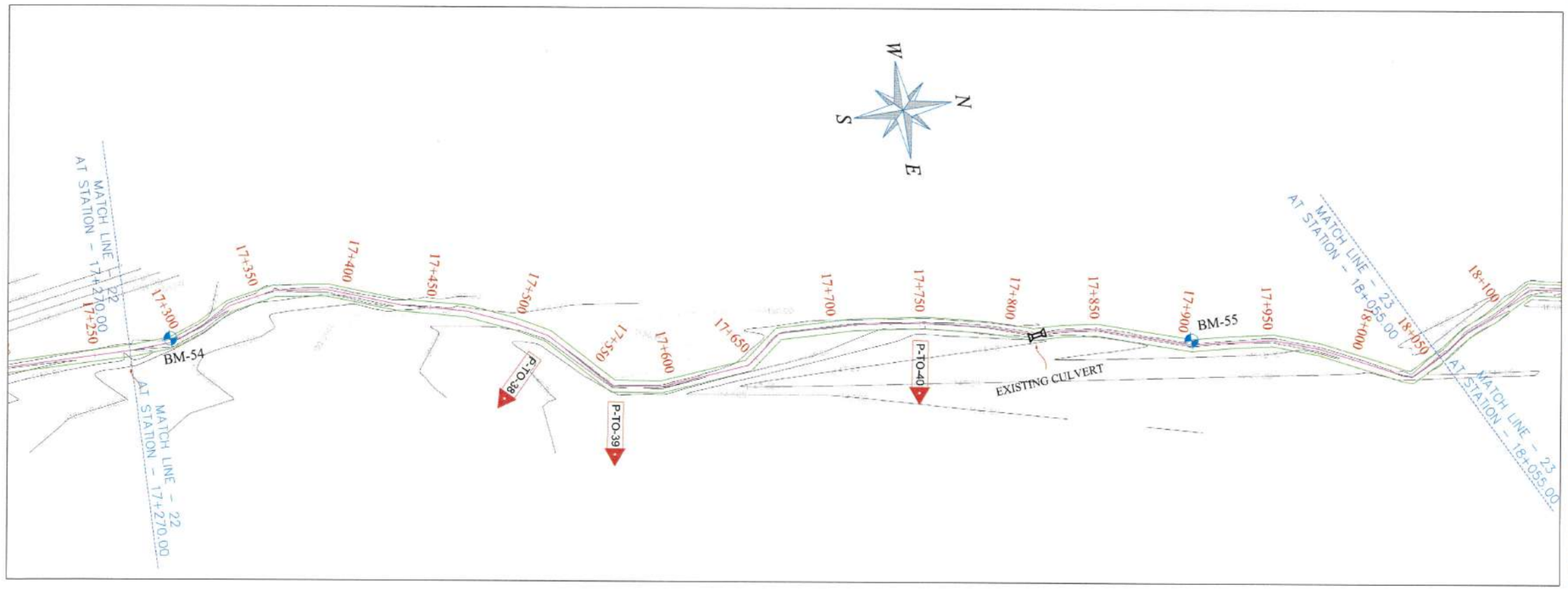
Issued for construction

Strengthening Watershed and Irrigation Management (SWIM)
AECOM
02 SEP 2019



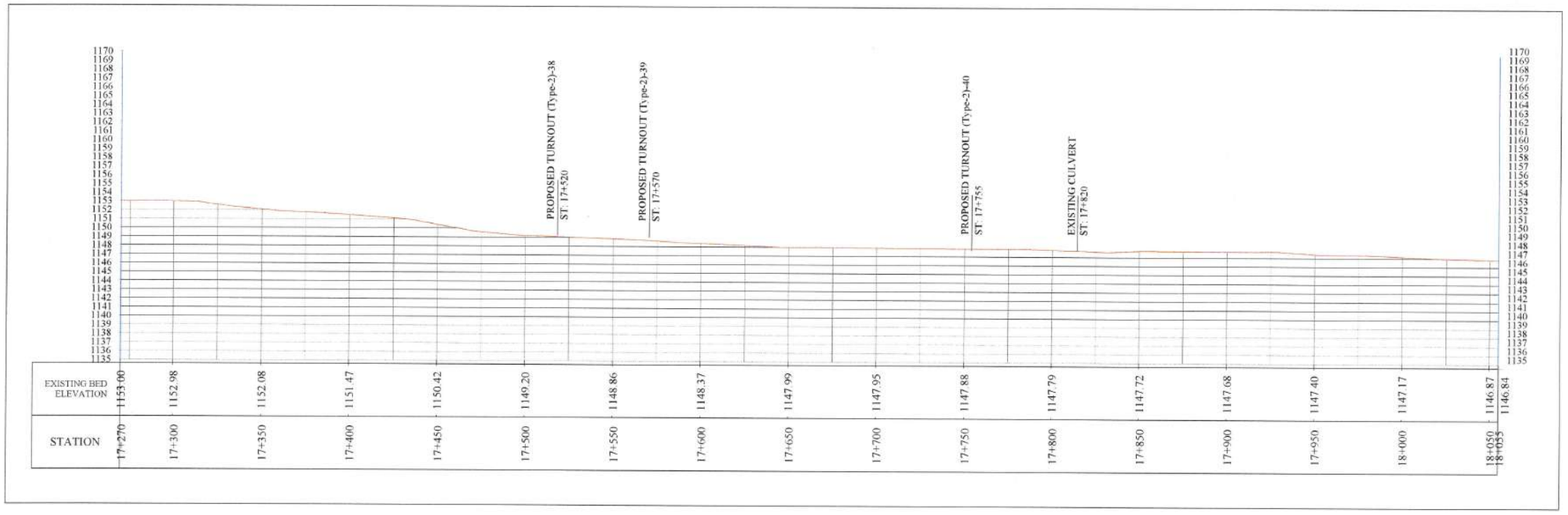

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | PLAN AND PROFILE<br>STATION: (16+485 TO 17+270) | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST)<br>DATE: | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR<br>DATE: | HORTENSIA VIDAURI<br>ACTING CHIEF OF PARTY<br>DATE: 14 JUL 2019 | DATE: | SHEET NO. 23 /49 |

Ministry of Energy and Water
Sep 2019




**LEGEND:-**

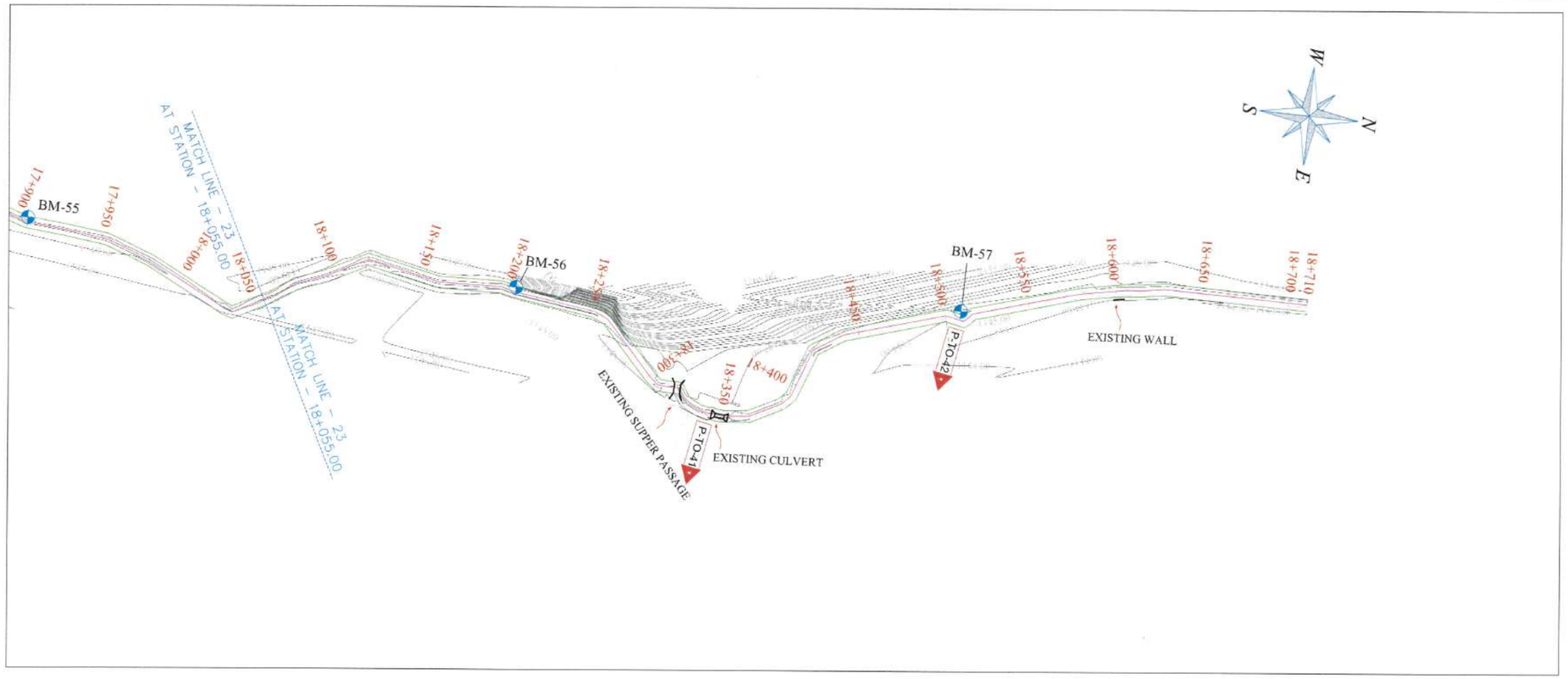
| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for Construction
02 SEP 2019

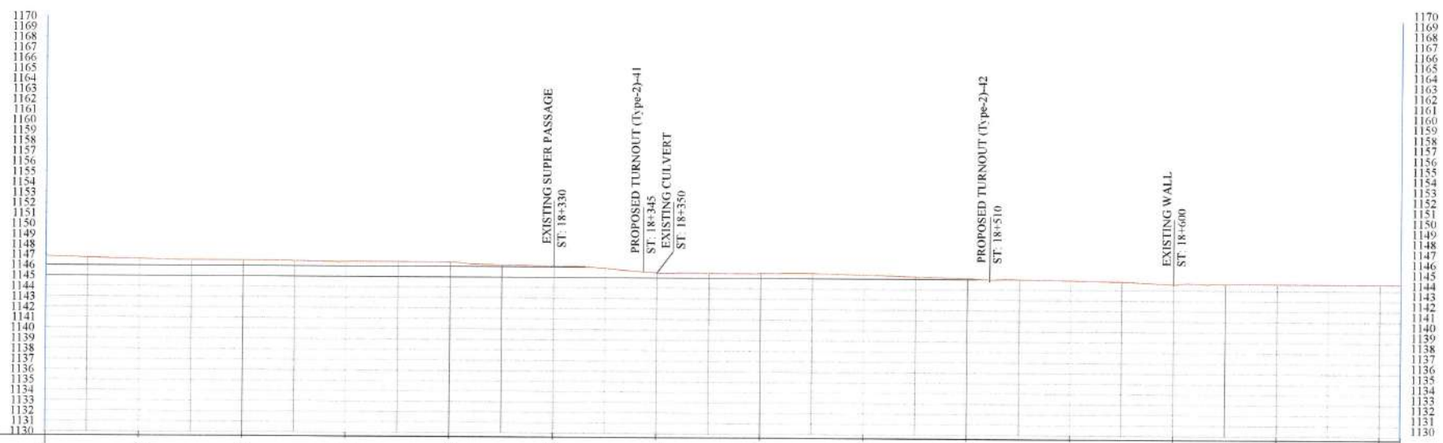
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (17+270 TO 18+075) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HOSTENSIA TIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 24/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Ministry of Energy & Water
2012
SEP 2019




**LEGEND:-**

| | |
|---|---|
| Agriculture Area | |
| Orchard(Garden) | |
| Bench Mark | |
| Scondary Canal | |
| Main Canal | |
| Branch Canal | |
| P-Turn Out | Turn Out |
| Residential Area | |
| Road | |
| Existing Stone Masonry | |
| Proposed Stone Masonry | |
| Existing Culvert | |
| Proposed Culvert | |
| Retaining Wall | |
| Tree | |
| Proposed Spillway | |
| Existing Spillway | |
| Wash Structure | |
| Foot Culvert | |
| Proposed Aqueduct | |
| Drop structure | |
| Super Passage | |
| Divider | |




| STATION | EXISTING BED ELEVATION |
|---|---|
| 18+055 | 1146.84 |
| 18+100 | 1146.60 |
| 18+150 | 1146.50 |
| 18+200 | 1146.40 |
| 18+250 | 1146.42 |
| 18+300 | 1146.05 |
| 18+350 | 1145.44 |
| 18+400 | 1145.44 |
| 18+450 | 1145.34 |
| 18+500 | 1145.08 |
| 18+550 | 1144.88 |
| 18+600 | 1144.55 |
| 18+650 | 1144.61 |
| 18+700 | 1144.61 |
| 18+710 | 1144.61 |

Issued for Construction

Strengthening Watersheds Irrigation Management (SWIM)

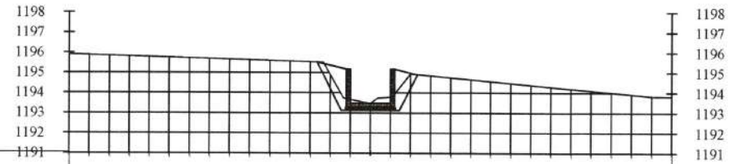
AECOM

02 SEP 2019

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW,RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | PLAN AND PROFILE STATION: (18+075 TO 18+710) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HOOR A. NAZIER CHIEF OF PARTY | | SHEET NO. 25 / 49 |
| | | | | | | DATE: | DATE: | DATE: | DATE: | |

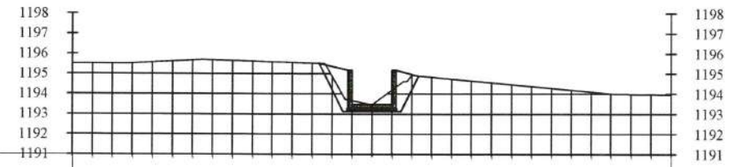
Sep 2019

## 5+225.00



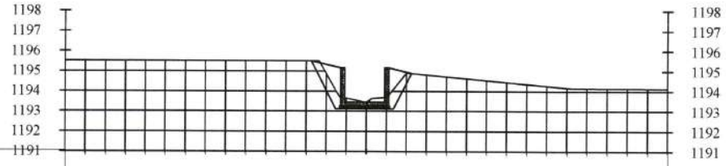

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.90 |
| -14.00 | 1195.87 |
| -13.00 | 1195.84 |
| -12.00 | 1195.81 |
| -11.00 | 1195.78 |
| -10.00 | 1195.75 |
| -9.00 | 1195.72 |
| -8.00 | 1195.69 |
| -7.00 | 1195.66 |
| -6.00 | 1195.64 |
| -5.00 | 1195.61 |
| -4.00 | 1195.58 |
| -3.00 | 1195.55 |
| -2.00 | 1194.89 |
| -1.00 | 1193.67 |
| 0 | 1193.47 |
| 1.00 | 1193.78 |
| 2.00 | 1194.93 |
| 3.00 | 1194.84 |
| 4.00 | 1194.75 |
| 5.00 | 1194.65 |
| 6.00 | 1194.56 |
| 7.00 | 1194.47 |
| 8.00 | 1194.38 |
| 9.00 | 1194.29 |
| 10.00 | 1194.20 |
| 11.00 | 1194.10 |
| 12.00 | 1194.01 |
| 13.00 | 1193.92 |
| 14.00 | 1193.83 |
| 15.00 | 1193.82 |

## 5+300.00



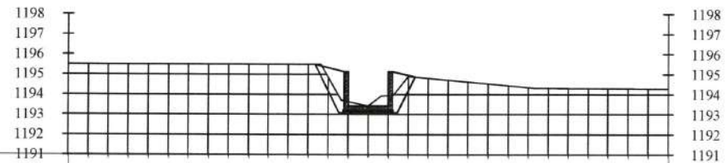

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.52 |
| -14.00 | 1195.52 |
| -13.00 | 1195.52 |
| -12.00 | 1195.53 |
| -11.00 | 1195.58 |
| -10.00 | 1195.62 |
| -9.00 | 1195.67 |
| -8.00 | 1195.68 |
| -7.00 | 1195.65 |
| -6.00 | 1195.62 |
| -5.00 | 1195.60 |
| -4.00 | 1195.57 |
| -3.00 | 1195.54 |
| -2.00 | 1194.88 |
| -1.00 | 1193.66 |
| 0 | 1193.46 |
| 1.00 | 1194.19 |
| 2.00 | 1194.92 |
| 3.00 | 1194.83 |
| 4.00 | 1194.74 |
| 5.00 | 1194.64 |
| 6.00 | 1194.55 |
| 7.00 | 1194.46 |
| 8.00 | 1194.37 |
| 9.00 | 1194.28 |
| 10.00 | 1194.19 |
| 11.00 | 1194.09 |
| 12.00 | 1194.00 |
| 13.00 | 1193.98 |
| 14.00 | 1193.98 |
| 15.00 | 1193.97 |

## 5+350.00

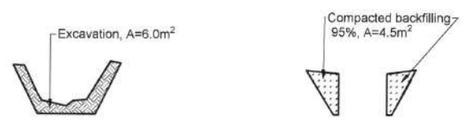



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.51 |
| -14.00 | 1195.51 |
| -13.00 | 1195.51 |
| -12.00 | 1195.51 |
| -11.00 | 1195.51 |
| -10.00 | 1195.51 |
| -9.00 | 1195.51 |
| -8.00 | 1195.51 |
| -7.00 | 1195.51 |
| -6.00 | 1195.51 |
| -5.00 | 1195.51 |
| -4.00 | 1195.51 |
| -3.00 | 1195.51 |
| -2.00 | 1194.87 |
| -1.00 | 1193.65 |
| 0 | 1193.45 |
| 1.00 | 1193.69 |
| 2.00 | 1194.91 |
| 3.00 | 1194.82 |
| 4.00 | 1194.72 |
| 5.00 | 1194.63 |
| 6.00 | 1194.54 |
| 7.00 | 1194.45 |
| 8.00 | 1194.36 |
| 9.00 | 1194.27 |
| 10.00 | 1194.17 |
| 11.00 | 1194.15 |
| 12.00 | 1194.14 |
| 13.00 | 1194.13 |
| 14.00 | 1194.13 |
| 15.00 | 1194.12 |

## 5+400.00




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.49 |
| -14.00 | 1195.49 |
| -13.00 | 1195.49 |
| -12.00 | 1195.49 |
| -11.00 | 1195.50 |
| -10.00 | 1195.50 |
| -9.00 | 1195.50 |
| -8.00 | 1195.50 |
| -7.00 | 1195.50 |
| -6.00 | 1195.50 |
| -5.00 | 1195.50 |
| -4.00 | 1195.50 |
| -3.00 | 1195.50 |
| -2.00 | 1194.86 |
| -1.00 | 1193.64 |
| 0 | 1193.44 |
| 1.00 | 1193.94 |
| 2.00 | 1194.90 |
| 3.00 | 1194.81 |
| 4.00 | 1194.71 |
| 5.00 | 1194.62 |
| 6.00 | 1194.53 |
| 7.00 | 1194.44 |
| 8.00 | 1194.35 |
| 9.00 | 1194.31 |
| 10.00 | 1194.30 |
| 11.00 | 1194.30 |
| 12.00 | 1194.29 |
| 13.00 | 1194.29 |
| 14.00 | 1194.28 |
| 15.00 | 1194.27 |




Average Cutting and Filling

Issued for construction

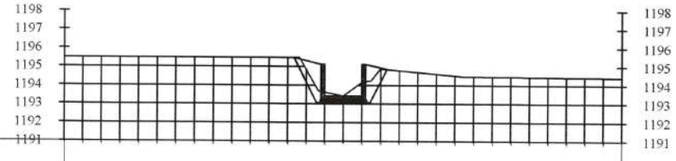
Strengthening Watershed and Irrigation Management (SWIM)
AECOM

02 SEP 2011

وزارت انرژی و آب
Ministry of Energy & Water
Directorate of Panj-Amu River Basin

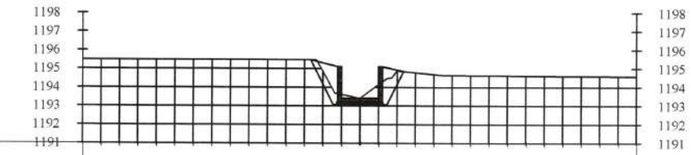
| | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: 3 SEP 2019 | SHEET NO. 26/49 |

## 5+450.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.48 |
| -14.00 | 1195.48 |
| -13.00 | 1195.48 |
| -12.00 | 1195.48 |
| -11.00 | 1195.48 |
| -10.00 | 1195.48 |
| -9.00 | 1195.48 |
| -8.00 | 1195.48 |
| -7.00 | 1195.48 |
| -6.00 | 1195.48 |
| -5.00 | 1195.49 |
| -4.00 | 1195.49 |
| -3.00 | 1195.49 |
| -2.00 | 1194.85 |
| -1.00 | 1193.63 |
| 0 | 1193.42 |
| 1.00 | 1194.16 |
| 2.00 | 1194.89 |
| 3.00 | 1194.79 |
| 4.00 | 1194.70 |
| 5.00 | 1194.61 |
| 6.00 | 1194.52 |
| 7.00 | 1194.48 |
| 8.00 | 1194.47 |
| 9.00 | 1194.46 |
| 10.00 | 1194.46 |
| 11.00 | 1194.45 |
| 12.00 | 1194.44 |
| 13.00 | 1194.44 |
| 14.00 | 1194.43 |
| 15.00 | 1194.43 |

## 5+500.00

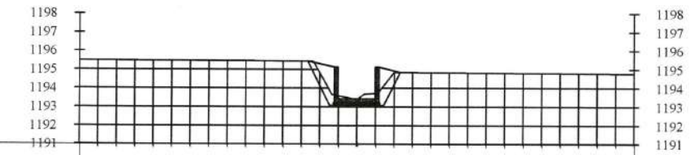


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.47 |
| -14.00 | 1195.47 |
| -13.00 | 1195.47 |
| -12.00 | 1195.47 |
| -11.00 | 1195.47 |
| -10.00 | 1195.47 |
| -9.00 | 1195.47 |
| -8.00 | 1195.47 |
| -7.00 | 1195.47 |
| -6.00 | 1195.47 |
| -5.00 | 1195.47 |
| -4.00 | 1195.47 |
| -3.00 | 1195.47 |
| -2.00 | 1194.84 |
| -1.00 | 1193.62 |
| 0 | 1193.41 |
| 1.00 | 1194.15 |
| 2.00 | 1194.87 |
| 3.00 | 1194.78 |
| 4.00 | 1194.69 |
| 5.00 | 1194.64 |
| 6.00 | 1194.63 |
| 7.00 | 1194.63 |
| 8.00 | 1194.62 |
| 9.00 | 1194.62 |
| 10.00 | 1194.61 |
| 11.00 | 1194.60 |
| 12.00 | 1194.60 |
| 13.00 | 1194.59 |
| 14.00 | 1194.58 |
| 15.00 | 1194.58 |

## 5+550.00

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.51 |
| -14.00 | 1195.51 |
| -13.00 | 1195.50 |
| -12.00 | 1195.49 |
| -11.00 | 1195.47 |
| -10.00 | 1195.46 |
| -9.00 | 1195.46 |
| -8.00 | 1195.46 |
| -7.00 | 1195.46 |
| -6.00 | 1195.46 |
| -5.00 | 1195.46 |
| -4.00 | 1195.46 |
| -3.00 | 1195.46 |
| -2.00 | 1194.83 |
| -1.00 | 1193.61 |
| 0 | 1193.40 |
| 1.00 | 1194.14 |
| 2.00 | 1194.86 |
| 3.00 | 1194.80 |
| 4.00 | 1194.80 |
| 5.00 | 1194.79 |
| 6.00 | 1194.79 |
| 7.00 | 1194.78 |
| 8.00 | 1194.77 |
| 9.00 | 1194.77 |
| 10.00 | 1194.76 |
| 11.00 | 1194.76 |
| 12.00 | 1194.75 |
| 13.00 | 1194.74 |
| 14.00 | 1194.74 |
| 15.00 | 1194.73 |

## 5+600.00

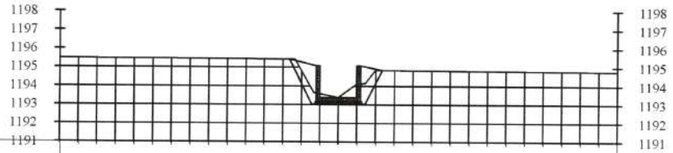


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.49 |
| -14.00 | 1195.49 |
| -13.00 | 1195.48 |
| -12.00 | 1195.48 |
| -11.00 | 1195.48 |
| -10.00 | 1195.47 |
| -9.00 | 1195.47 |
| -8.00 | 1195.47 |
| -7.00 | 1195.47 |
| -6.00 | 1195.46 |
| -5.00 | 1195.46 |
| -4.00 | 1195.46 |
| -3.00 | 1195.45 |
| -2.00 | 1194.82 |
| -1.00 | 1193.60 |
| 0 | 1193.39 |
| 1.00 | 1193.72 |
| 2.00 | 1194.85 |
| 3.00 | 1194.85 |
| 4.00 | 1194.84 |
| 5.00 | 1194.84 |
| 6.00 | 1194.83 |
| 7.00 | 1194.82 |
| 8.00 | 1194.82 |
| 9.00 | 1194.81 |
| 10.00 | 1194.81 |
| 11.00 | 1194.80 |
| 12.00 | 1194.79 |
| 13.00 | 1194.79 |
| 14.00 | 1194.78 |
| 15.00 | 1194.78 |

Issued for construction

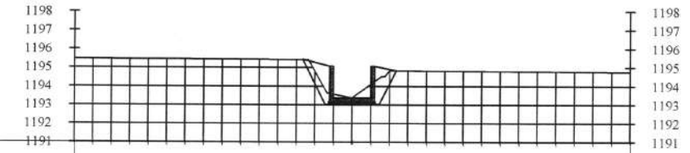
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
02 SEP 2019

## 5+650.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.48 |
| -14.00 | 1195.48 |
| -13.00 | 1195.47 |
| -12.00 | 1195.47 |
| -11.00 | 1195.47 |
| -10.00 | 1195.46 |
| -9.00 | 1195.46 |
| -8.00 | 1195.46 |
| -7.00 | 1195.46 |
| -6.00 | 1195.45 |
| -5.00 | 1195.45 |
| -4.00 | 1195.45 |
| -3.00 | 1195.44 |
| -2.00 | 1194.81 |
| -1.00 | 1193.59 |
| 0 | 1193.38 |
| 1.00 | 1194.10 |
| 2.00 | 1194.84 |
| 3.00 | 1194.84 |
| 4.00 | 1194.83 |
| 5.00 | 1194.83 |
| 6.00 | 1194.82 |
| 7.00 | 1194.81 |
| 8.00 | 1194.81 |
| 9.00 | 1194.80 |
| 10.00 | 1194.80 |
| 11.00 | 1194.80 |
| 12.00 | 1194.79 |
| 13.00 | 1194.78 |
| 14.00 | 1194.78 |
| 15.00 | 1194.77 |

## 5+700.00

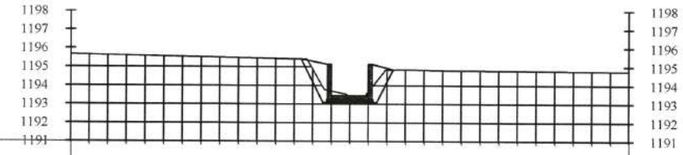


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.47 |
| -14.00 | 1195.46 |
| -13.00 | 1195.46 |
| -12.00 | 1195.46 |
| -11.00 | 1195.46 |
| -10.00 | 1195.45 |
| -9.00 | 1195.45 |
| -8.00 | 1195.45 |
| -7.00 | 1195.44 |
| -6.00 | 1195.44 |
| -5.00 | 1195.44 |
| -4.00 | 1195.44 |
| -3.00 | 1195.43 |
| -2.00 | 1194.80 |
| -1.00 | 1193.57 |
| 0 | 1193.37 |
| 1.00 | 1194.10 |
| 2.00 | 1194.83 |
| 3.00 | 1194.83 |
| 4.00 | 1194.82 |
| 5.00 | 1194.81 |
| 6.00 | 1194.81 |
| 7.00 | 1194.80 |
| 8.00 | 1194.80 |
| 9.00 | 1194.79 |
| 10.00 | 1194.78 |
| 11.00 | 1194.78 |
| 12.00 | 1194.77 |
| 13.00 | 1194.77 |
| 14.00 | 1194.76 |
| 15.00 | 1194.76 |

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEWRBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI<br>ACTING CHIEF OF PARTY | | SHEET NO.<br>27/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

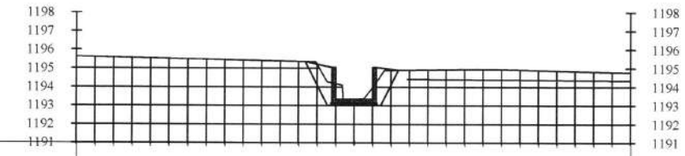
Ministry of Energy & Water
General Directorate of Panj-Amu River Basin
SEP 2019

## 5+750.00



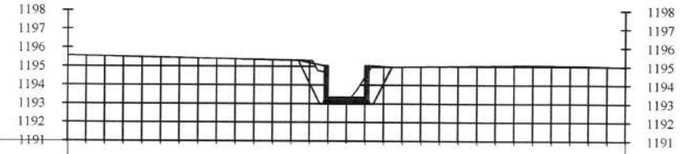
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.67 |
| -14.00 | 1195.65 |
| -13.00 | 1195.63 |
| -12.00 | 1195.61 |
| -11.00 | 1195.59 |
| -10.00 | 1195.57 |
| -9.00 | 1195.55 |
| -8.00 | 1195.52 |
| -7.00 | 1195.50 |
| -6.00 | 1195.48 |
| -5.00 | 1195.46 |
| -4.00 | 1195.44 |
| -3.00 | 1195.42 |
| -2.00 | 1194.88 |
| -1.00 | 1193.70 |
| 0 | 1193.36 |
| 1.00 | 1193.64 |
| 2.00 | 1194.84 |
| 3.00 | 1194.85 |
| 4.00 | 1194.83 |
| 5.00 | 1194.81 |
| 6.00 | 1194.81 |
| 7.00 | 1194.80 |
| 8.00 | 1194.80 |
| 9.00 | 1194.79 |
| 10.00 | 1194.79 |
| 11.00 | 1194.78 |
| 12.00 | 1194.77 |
| 13.00 | 1194.77 |
| 14.00 | 1194.76 |
| 15.00 | 1194.76 |

## 5+800.00



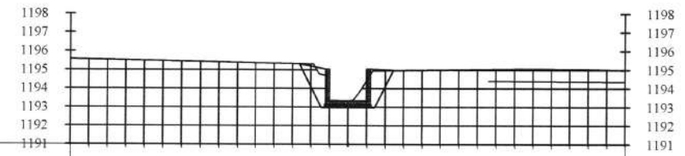
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.62 |
| -14.00 | 1195.60 |
| -13.00 | 1195.58 |
| -12.00 | 1195.56 |
| -11.00 | 1195.54 |
| -10.00 | 1195.52 |
| -9.00 | 1195.50 |
| -8.00 | 1195.48 |
| -7.00 | 1195.46 |
| -6.00 | 1195.44 |
| -5.00 | 1195.41 |
| -4.00 | 1195.39 |
| -3.00 | 1195.37 |
| -2.00 | 1195.22 |
| -1.00 | 1194.18 |
| 0 | 1193.35 |
| 1.00 | 1193.97 |
| 2.00 | 1194.90 |
| 3.00 | 1194.91 |
| 4.00 | 1194.92 |
| 5.00 | 1194.93 |
| 6.00 | 1194.94 |
| 7.00 | 1194.95 |
| 8.00 | 1194.95 |
| 9.00 | 1194.92 |
| 10.00 | 1194.90 |
| 11.00 | 1194.87 |
| 12.00 | 1194.85 |
| 13.00 | 1194.82 |
| 14.00 | 1194.80 |
| 15.00 | 1194.79 |

## 5+850.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.57 |
| -14.00 | 1195.55 |
| -13.00 | 1195.53 |
| -12.00 | 1195.51 |
| -11.00 | 1195.49 |
| -10.00 | 1195.47 |
| -9.00 | 1195.45 |
| -8.00 | 1195.43 |
| -7.00 | 1195.41 |
| -6.00 | 1195.39 |
| -5.00 | 1195.37 |
| -4.00 | 1195.35 |
| -3.00 | 1195.32 |
| -2.00 | 1195.30 |
| -1.00 | 1193.35 |
| 0 | 1193.34 |
| 1.00 | 1194.42 |
| 2.00 | 1194.96 |
| 3.00 | 1194.97 |
| 4.00 | 1194.98 |
| 5.00 | 1194.99 |
| 6.00 | 1195.00 |
| 7.00 | 1195.02 |
| 8.00 | 1195.03 |
| 9.00 | 1195.04 |
| 10.00 | 1195.04 |
| 11.00 | 1195.04 |
| 12.00 | 1195.04 |
| 13.00 | 1195.04 |
| 14.00 | 1195.01 |
| 15.00 | 1194.99 |

## 5+900.00

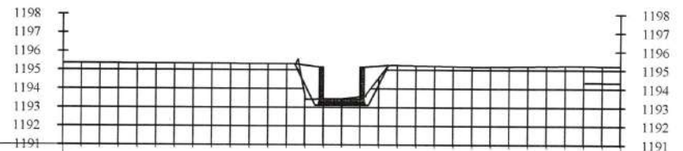


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.57 |
| -14.00 | 1195.55 |
| -13.00 | 1195.53 |
| -12.00 | 1195.51 |
| -11.00 | 1195.49 |
| -10.00 | 1195.47 |
| -9.00 | 1195.45 |
| -8.00 | 1195.43 |
| -7.00 | 1195.41 |
| -6.00 | 1195.39 |
| -5.00 | 1195.37 |
| -4.00 | 1195.35 |
| -3.00 | 1195.32 |
| -2.00 | 1195.30 |
| -1.00 | 1193.35 |
| 0 | 1193.34 |
| 1.00 | 1194.42 |
| 2.00 | 1194.96 |
| 3.00 | 1194.97 |
| 4.00 | 1194.98 |
| 5.00 | 1194.99 |
| 6.00 | 1195.00 |
| 7.00 | 1195.02 |
| 8.00 | 1195.03 |
| 9.00 | 1195.04 |
| 10.00 | 1195.04 |
| 11.00 | 1195.04 |
| 12.00 | 1195.04 |
| 13.00 | 1195.04 |
| 14.00 | 1195.01 |
| 15.00 | 1194.99 |

Issued for construction

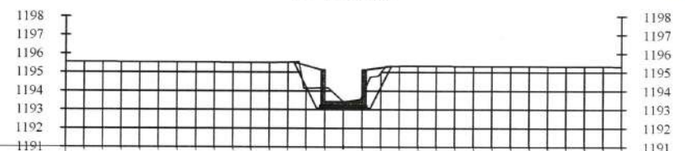
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
02 SEP 2010

## 5+950.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.36 |
| -14.00 | 1195.36 |
| -13.00 | 1195.36 |
| -12.00 | 1195.35 |
| -11.00 | 1195.35 |
| -10.00 | 1195.35 |
| -9.00 | 1195.35 |
| -8.00 | 1195.34 |
| -7.00 | 1195.34 |
| -6.00 | 1195.34 |
| -5.00 | 1195.33 |
| -4.00 | 1195.33 |
| -3.00 | 1195.33 |
| -2.00 | 1193.69 |
| -1.00 | 1193.44 |
| 0 | 1193.46 |
| 1.00 | 1193.57 |
| 2.00 | 1194.58 |
| 3.00 | 1195.25 |
| 4.00 | 1195.24 |
| 5.00 | 1195.22 |
| 6.00 | 1195.20 |
| 7.00 | 1195.18 |
| 8.00 | 1195.18 |
| 9.00 | 1195.20 |
| 10.00 | 1195.21 |
| 11.00 | 1195.22 |
| 12.00 | 1195.23 |
| 13.00 | 1195.23 |
| 14.00 | 1195.23 |
| 15.00 | 1195.23 |

## 6+000.00

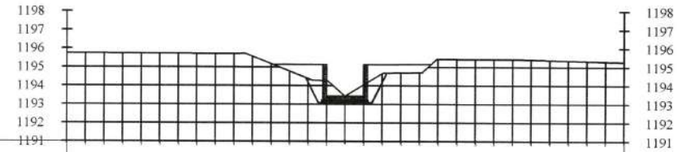


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.55 |
| -14.00 | 1195.54 |
| -13.00 | 1195.54 |
| -12.00 | 1195.54 |
| -11.00 | 1195.54 |
| -10.00 | 1195.53 |
| -9.00 | 1195.53 |
| -8.00 | 1195.53 |
| -7.00 | 1195.53 |
| -6.00 | 1195.52 |
| -5.00 | 1195.52 |
| -4.00 | 1195.52 |
| -3.00 | 1195.54 |
| -2.00 | 1194.15 |
| -1.00 | 1194.16 |
| 0 | 1193.43 |
| 1.00 | 1193.75 |
| 2.00 | 1194.97 |
| 3.00 | 1195.34 |
| 4.00 | 1195.35 |
| 5.00 | 1195.34 |
| 6.00 | 1195.34 |
| 7.00 | 1195.33 |
| 8.00 | 1195.33 |
| 9.00 | 1195.33 |
| 10.00 | 1195.33 |
| 11.00 | 1195.32 |
| 12.00 | 1195.32 |
| 13.00 | 1195.32 |
| 14.00 | 1195.32 |
| 15.00 | 1195.30 |

Ministry of Energy & Water
General Directorate of Panj-Amu River Basin
SEP 2019

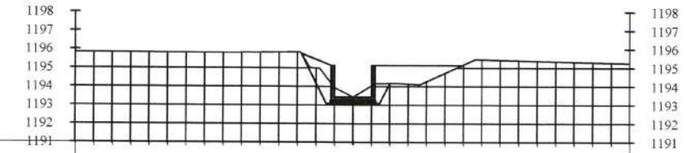
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 28/49 |
| | | | | | | DATE: | DATE: | DATE: | DATE: | |

## 6+050.00



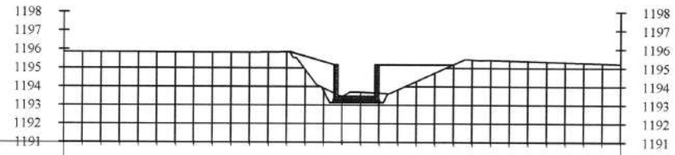

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.73 |
| -14.00 | 1195.73 |
| -13.00 | 1195.72 |
| -12.00 | 1195.72 |
| -11.00 | 1195.72 |
| -10.00 | 1195.72 |
| -9.00 | 1195.71 |
| -8.00 | 1195.71 |
| -7.00 | 1195.71 |
| -6.00 | 1195.70 |
| -5.00 | 1195.57 |
| -4.00 | 1195.17 |
| -3.00 | 1194.78 |
| -2.00 | 1194.38 |
| -1.00 | 1194.26 |
| 0 | 1193.44 |
| 1.00 | 1194.04 |
| 2.00 | 1194.65 |
| 3.00 | 1194.68 |
| 4.00 | 1194.70 |
| 5.00 | 1195.43 |
| 6.00 | 1195.42 |
| 7.00 | 1195.42 |
| 8.00 | 1195.42 |
| 9.00 | 1195.41 |
| 10.00 | 1195.40 |
| 11.00 | 1195.37 |
| 12.00 | 1195.35 |
| 13.00 | 1195.32 |
| 14.00 | 1195.29 |
| 15.00 | 1195.27 |

## 6+100.00



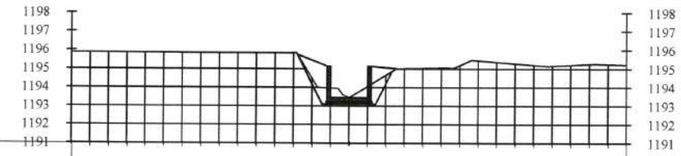

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.83 |
| -14.00 | 1195.82 |
| -13.00 | 1195.82 |
| -12.00 | 1195.82 |
| -11.00 | 1195.82 |
| -10.00 | 1195.82 |
| -9.00 | 1195.82 |
| -8.00 | 1195.82 |
| -7.00 | 1195.82 |
| -6.00 | 1195.82 |
| -5.00 | 1195.83 |
| -4.00 | 1195.84 |
| -3.00 | 1195.86 |
| -2.00 | 1195.00 |
| -1.00 | 1193.93 |
| 0 | 1193.44 |
| 1.00 | 1194.05 |
| 2.00 | 1194.17 |
| 3.00 | 1194.14 |
| 4.00 | 1194.27 |
| 5.00 | 1194.73 |
| 6.00 | 1195.18 |
| 7.00 | 1195.45 |
| 8.00 | 1195.42 |
| 9.00 | 1195.39 |
| 10.00 | 1195.37 |
| 11.00 | 1195.34 |
| 12.00 | 1195.32 |
| 13.00 | 1195.29 |
| 14.00 | 1195.27 |
| 15.00 | 1195.24 |

## 6+150.00




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.85 |
| -14.00 | 1195.85 |
| -13.00 | 1195.85 |
| -12.00 | 1195.84 |
| -11.00 | 1195.84 |
| -10.00 | 1195.84 |
| -9.00 | 1195.84 |
| -8.00 | 1195.84 |
| -7.00 | 1195.84 |
| -6.00 | 1195.84 |
| -5.00 | 1195.83 |
| -4.00 | 1195.85 |
| -3.00 | 1195.86 |
| -2.00 | 1194.93 |
| -1.00 | 1193.93 |
| 0 | 1193.44 |
| 1.00 | 1193.70 |
| 2.00 | 1193.65 |
| 3.00 | 1193.82 |
| 4.00 | 1194.28 |
| 5.00 | 1194.73 |
| 6.00 | 1195.18 |
| 7.00 | 1195.44 |
| 8.00 | 1195.42 |
| 9.00 | 1195.39 |
| 10.00 | 1195.36 |
| 11.00 | 1195.33 |
| 12.00 | 1195.30 |
| 13.00 | 1195.27 |
| 14.00 | 1195.24 |
| 15.00 | 1195.22 |

## 6+200.00

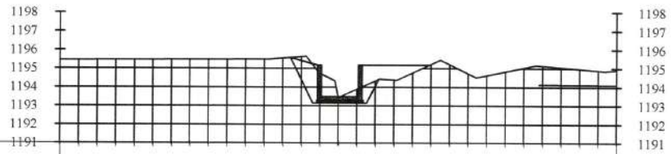



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.87 |
| -14.00 | 1195.87 |
| -13.00 | 1195.87 |
| -12.00 | 1195.87 |
| -11.00 | 1195.86 |
| -10.00 | 1195.86 |
| -9.00 | 1195.86 |
| -8.00 | 1195.86 |
| -7.00 | 1195.86 |
| -6.00 | 1195.86 |
| -5.00 | 1195.86 |
| -4.00 | 1195.86 |
| -3.00 | 1195.86 |
| -2.00 | 1194.49 |
| -1.00 | 1193.97 |
| 0 | 1193.44 |
| 1.00 | 1194.05 |
| 2.00 | 1194.66 |
| 3.00 | 1195.02 |
| 4.00 | 1195.03 |
| 5.00 | 1195.05 |
| 6.00 | 1195.18 |
| 7.00 | 1195.44 |
| 8.00 | 1195.36 |
| 9.00 | 1195.28 |
| 10.00 | 1195.20 |
| 11.00 | 1195.15 |
| 12.00 | 1195.20 |
| 13.00 | 1195.25 |
| 14.00 | 1195.24 |
| 15.00 | 1195.21 |

Issued for construction

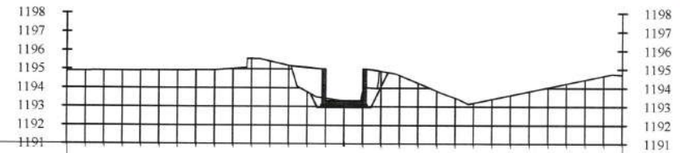
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
06 SEP 2019

## 6+250.00




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.45 |
| -14.00 | 1195.45 |
| -13.00 | 1195.46 |
| -12.00 | 1195.46 |
| -11.00 | 1195.47 |
| -10.00 | 1195.47 |
| -9.00 | 1195.47 |
| -8.00 | 1195.48 |
| -7.00 | 1195.48 |
| -6.00 | 1195.48 |
| -5.00 | 1195.49 |
| -4.00 | 1195.49 |
| -3.00 | 1195.55 |
| -2.00 | 1195.62 |
| -1.00 | 1194.73 |
| 0 | 1193.44 |
| 1.00 | 1193.89 |
| 2.00 | 1194.34 |
| 3.00 | 1194.39 |
| 4.00 | 1194.76 |
| 5.00 | 1195.21 |
| 6.00 | 1195.21 |
| 7.00 | 1194.72 |
| 8.00 | 1194.62 |
| 9.00 | 1194.83 |
| 10.00 | 1195.03 |
| 11.00 | 1195.14 |
| 12.00 | 1195.06 |
| 13.00 | 1194.98 |
| 14.00 | 1194.90 |
| 15.00 | 1194.80 |

## 6+300.00

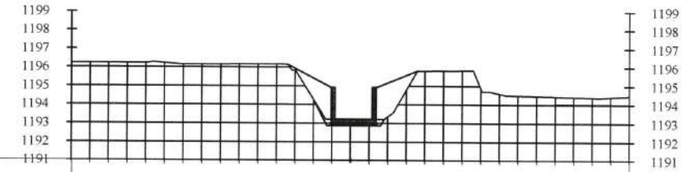



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.91 |
| -14.00 | 1194.91 |
| -13.00 | 1194.92 |
| -12.00 | 1194.92 |
| -11.00 | 1194.93 |
| -10.00 | 1194.93 |
| -9.00 | 1194.93 |
| -8.00 | 1194.94 |
| -7.00 | 1194.94 |
| -6.00 | 1195.02 |
| -5.00 | 1195.55 |
| -4.00 | 1195.42 |
| -3.00 | 1195.20 |
| -2.00 | 1194.01 |
| -1.00 | 1193.73 |
| 0 | 1193.31 |
| 1.00 | 1193.78 |
| 2.00 | 1194.78 |
| 3.00 | 1194.24 |
| 4.00 | 1194.14 |
| 5.00 | 1193.84 |
| 6.00 | 1193.47 |
| 7.00 | 1193.19 |
| 8.00 | 1193.40 |
| 9.00 | 1193.61 |
| 10.00 | 1193.82 |
| 11.00 | 1194.02 |
| 12.00 | 1194.23 |
| 13.00 | 1194.44 |
| 14.00 | 1194.65 |
| 15.00 | 1194.70 |

Ministry of Energy & Water

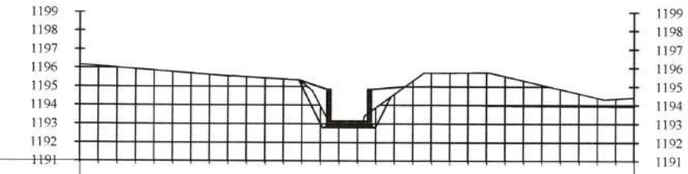
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 29/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: Sep 2019 | |

## 6+350.00



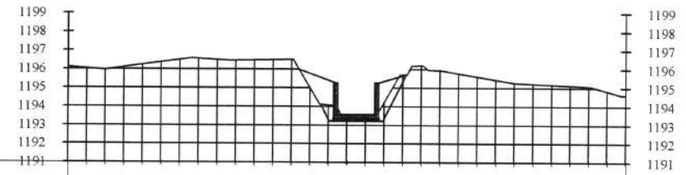
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1196.23 |
| -14.00 | 1196.23 |
| -13.00 | 1196.24 |
| -12.00 | 1196.24 |
| -11.00 | 1196.24 |
| -10.00 | 1196.23 |
| -9.00 | 1196.16 |
| -8.00 | 1196.16 |
| -7.00 | 1196.16 |
| -6.00 | 1196.16 |
| -5.00 | 1196.17 |
| -4.00 | 1196.17 |
| -3.00 | 1195.85 |
| -2.00 | 1194.28 |
| -1.00 | 1193.21 |
| 0 | 1193.22 |
| 1.00 | 1193.21 |
| 2.00 | 1193.36 |
| 3.00 | 1194.78 |
| 4.00 | 1195.82 |
| 5.00 | 1195.83 |
| 6.00 | 1195.84 |
| 7.00 | 1194.85 |
| 8.00 | 1194.59 |
| 9.00 | 1194.49 |
| 10.00 | 1194.47 |
| 11.00 | 1194.44 |
| 12.00 | 1194.42 |
| 13.00 | 1194.39 |
| 14.00 | 1194.42 |
| 15.00 | 1194.46 |

## 6+400.00



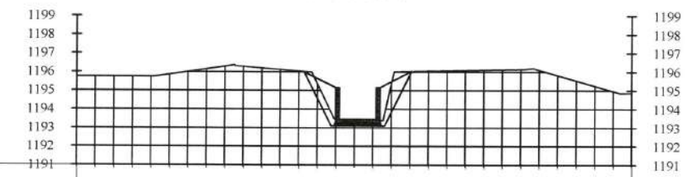
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1196.17 |
| -14.00 | 1196.09 |
| -13.00 | 1196.01 |
| -12.00 | 1195.94 |
| -11.00 | 1195.86 |
| -10.00 | 1195.79 |
| -9.00 | 1195.71 |
| -8.00 | 1195.64 |
| -7.00 | 1195.56 |
| -6.00 | 1195.51 |
| -5.00 | 1195.46 |
| -4.00 | 1195.40 |
| -3.00 | 1195.26 |
| -2.00 | 1193.96 |
| -1.00 | 1193.16 |
| 0 | 1193.15 |
| 1.00 | 1193.87 |
| 2.00 | 1194.58 |
| 3.00 | 1195.29 |
| 4.00 | 1195.74 |
| 5.00 | 1195.75 |
| 6.00 | 1195.75 |
| 7.00 | 1195.76 |
| 8.00 | 1195.55 |
| 9.00 | 1195.32 |
| 10.00 | 1195.09 |
| 11.00 | 1194.86 |
| 12.00 | 1194.63 |
| 13.00 | 1194.40 |
| 14.00 | 1194.35 |
| 15.00 | 1194.42 |

## 6+450.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1196.10 |
| -14.00 | 1196.03 |
| -13.00 | 1195.96 |
| -12.00 | 1196.09 |
| -11.00 | 1196.23 |
| -10.00 | 1196.36 |
| -9.00 | 1196.49 |
| -8.00 | 1196.56 |
| -7.00 | 1196.50 |
| -6.00 | 1196.47 |
| -5.00 | 1196.48 |
| -4.00 | 1196.50 |
| -3.00 | 1196.51 |
| -2.00 | 1195.00 |
| -1.00 | 1194.08 |
| 0 | 1193.57 |
| 1.00 | 1193.57 |
| 2.00 | 1194.22 |
| 3.00 | 1195.69 |
| 4.00 | 1196.18 |
| 5.00 | 1195.95 |
| 6.00 | 1195.78 |
| 7.00 | 1195.61 |
| 8.00 | 1195.44 |
| 9.00 | 1195.27 |
| 10.00 | 1195.22 |
| 11.00 | 1195.18 |
| 12.00 | 1195.13 |
| 13.00 | 1195.08 |
| 14.00 | 1194.83 |
| 15.00 | 1194.61 |

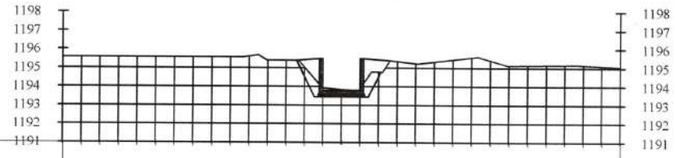
## 6+500.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.74 |
| -14.00 | 1195.74 |
| -13.00 | 1195.74 |
| -12.00 | 1195.74 |
| -11.00 | 1195.74 |
| -10.00 | 1195.86 |
| -9.00 | 1196.00 |
| -8.00 | 1196.14 |
| -7.00 | 1196.29 |
| -6.00 | 1196.28 |
| -5.00 | 1196.20 |
| -4.00 | 1196.12 |
| -3.00 | 1196.04 |
| -2.00 | 1195.36 |
| -1.00 | 1193.44 |
| 0 | 1193.34 |
| 1.00 | 1193.42 |
| 2.00 | 1195.36 |
| 3.00 | 1196.03 |
| 4.00 | 1196.05 |
| 5.00 | 1196.07 |
| 6.00 | 1196.09 |
| 7.00 | 1196.10 |
| 8.00 | 1196.12 |
| 9.00 | 1196.14 |
| 10.00 | 1196.10 |
| 11.00 | 1195.82 |
| 12.00 | 1195.53 |
| 13.00 | 1195.25 |
| 14.00 | 1194.97 |
| 15.00 | 1194.87 |

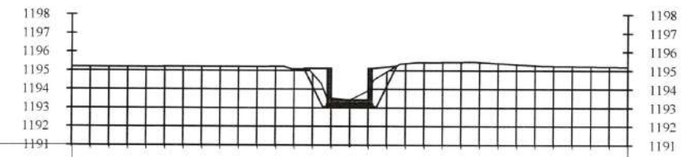
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for construction
02 SEP 2010

## 6+550.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.57 |
| -14.00 | 1195.57 |
| -13.00 | 1195.57 |
| -12.00 | 1195.57 |
| -11.00 | 1195.57 |
| -10.00 | 1195.57 |
| -9.00 | 1195.57 |
| -8.00 | 1195.57 |
| -7.00 | 1195.57 |
| -6.00 | 1195.57 |
| -5.00 | 1195.61 |
| -4.00 | 1195.41 |
| -3.00 | 1195.41 |
| -2.00 | 1195.04 |
| -1.00 | 1193.94 |
| 0 | 1193.84 |
| 1.00 | 1193.87 |
| 2.00 | 1194.79 |
| 3.00 | 1195.34 |
| 4.00 | 1195.24 |
| 5.00 | 1195.33 |
| 6.00 | 1195.44 |
| 7.00 | 1195.55 |
| 8.00 | 1195.40 |
| 9.00 | 1195.13 |
| 10.00 | 1195.14 |
| 11.00 | 1195.15 |
| 12.00 | 1195.16 |
| 13.00 | 1195.15 |
| 14.00 | 1195.10 |
| 15.00 | 1195.04 |

## 6+600.00

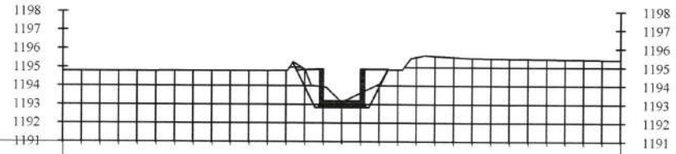


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.20 |
| -14.00 | 1195.20 |
| -13.00 | 1195.20 |
| -12.00 | 1195.20 |
| -11.00 | 1195.20 |
| -10.00 | 1195.20 |
| -9.00 | 1195.21 |
| -8.00 | 1195.21 |
| -7.00 | 1195.21 |
| -6.00 | 1195.21 |
| -5.00 | 1195.21 |
| -4.00 | 1195.23 |
| -3.00 | 1195.08 |
| -2.00 | 1194.83 |
| -1.00 | 1193.53 |
| 0 | 1193.42 |
| 1.00 | 1193.96 |
| 2.00 | 1194.93 |
| 3.00 | 1195.37 |
| 4.00 | 1195.43 |
| 5.00 | 1195.44 |
| 6.00 | 1195.45 |
| 7.00 | 1195.44 |
| 8.00 | 1195.39 |
| 9.00 | 1195.33 |
| 10.00 | 1195.28 |
| 11.00 | 1195.25 |
| 12.00 | 1195.24 |
| 13.00 | 1195.23 |
| 14.00 | 1195.22 |
| 15.00 | 1195.21 |

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA. APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL<br>COMPLIANCE DIRECTOR | HORTENSIA SIDAURI<br>ACTING CHIEF OF PARTY | | SHEET NO.<br>30/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

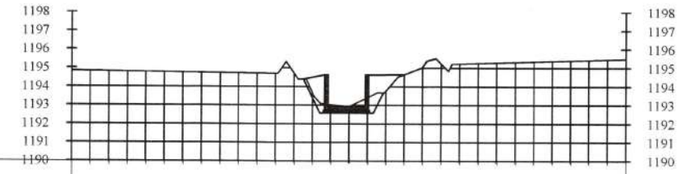
Ministry of Energy & Water
SEP 2019

## 6+650.00



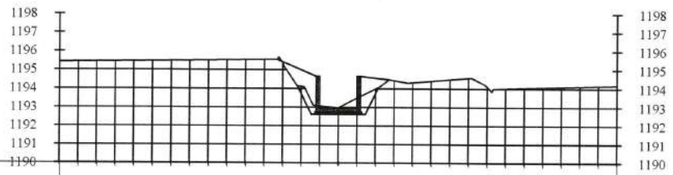
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.78 |
| -14.00 | 1194.79 |
| -13.00 | 1194.79 |
| -12.00 | 1194.79 |
| -11.00 | 1194.79 |
| -10.00 | 1194.79 |
| -9.00 | 1194.79 |
| -8.00 | 1194.79 |
| -7.00 | 1194.80 |
| -6.00 | 1194.80 |
| -5.00 | 1194.80 |
| -4.00 | 1194.81 |
| -3.00 | 1194.82 |
| -2.00 | 1194.88 |
| -1.00 | 1193.94 |
| 0 | 1193.11 |
| 1.00 | 1193.60 |
| 2.00 | 1194.09 |
| 3.00 | 1194.86 |
| 4.00 | 1195.53 |
| 5.00 | 1195.59 |
| 6.00 | 1195.54 |
| 7.00 | 1195.48 |
| 8.00 | 1195.47 |
| 9.00 | 1195.46 |
| 10.00 | 1195.45 |
| 11.00 | 1195.44 |
| 12.00 | 1195.43 |
| 13.00 | 1195.42 |
| 14.00 | 1195.41 |
| 15.00 | 1195.40 |

## 6+700.00



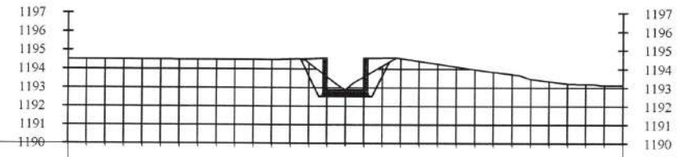
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.83 |
| -14.00 | 1194.82 |
| -13.00 | 1194.81 |
| -12.00 | 1194.80 |
| -11.00 | 1194.79 |
| -10.00 | 1194.78 |
| -9.00 | 1194.76 |
| -8.00 | 1194.75 |
| -7.00 | 1194.74 |
| -6.00 | 1194.73 |
| -5.00 | 1194.72 |
| -4.00 | 1194.71 |
| -3.00 | 1194.72 |
| -2.00 | 1193.69 |
| -1.00 | 1193.02 |
| 0 | 1192.92 |
| 1.00 | 1193.41 |
| 2.00 | 1193.75 |
| 3.00 | 1194.64 |
| 4.00 | 1195.04 |
| 5.00 | 1195.23 |
| 6.00 | 1195.26 |
| 7.00 | 1195.28 |
| 8.00 | 1195.31 |
| 9.00 | 1195.34 |
| 10.00 | 1195.36 |
| 11.00 | 1195.39 |
| 12.00 | 1195.42 |
| 13.00 | 1195.45 |
| 14.00 | 1195.47 |
| 15.00 | |

## 6+750.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.43 |
| -14.00 | 1195.44 |
| -13.00 | 1195.45 |
| -12.00 | 1195.46 |
| -11.00 | 1195.47 |
| -10.00 | 1195.48 |
| -9.00 | 1195.49 |
| -8.00 | 1195.50 |
| -7.00 | 1195.51 |
| -6.00 | 1195.52 |
| -5.00 | 1195.53 |
| -4.00 | 1195.54 |
| -3.00 | 1195.35 |
| -2.00 | 1194.12 |
| -1.00 | 1193.06 |
| 0 | 1192.96 |
| 1.00 | 1193.49 |
| 2.00 | 1193.98 |
| 3.00 | 1194.43 |
| 4.00 | 1194.32 |
| 5.00 | 1194.40 |
| 6.00 | 1194.49 |
| 7.00 | 1194.57 |
| 8.00 | 1194.10 |
| 9.00 | 1194.02 |
| 10.00 | 1194.04 |
| 11.00 | 1194.07 |
| 12.00 | 1194.10 |
| 13.00 | 1194.13 |
| 14.00 | 1194.15 |
| 15.00 | 1194.18 |

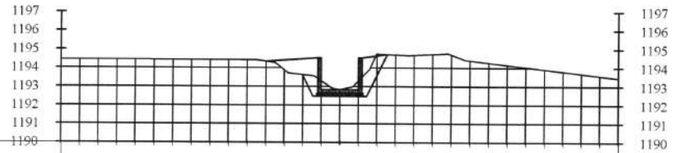
## 6+800.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.51 |
| -14.00 | 1194.51 |
| -13.00 | 1194.51 |
| -12.00 | 1194.51 |
| -11.00 | 1194.51 |
| -10.00 | 1194.51 |
| -9.00 | 1194.51 |
| -8.00 | 1194.51 |
| -7.00 | 1194.51 |
| -6.00 | 1194.51 |
| -5.00 | 1194.51 |
| -4.00 | 1194.53 |
| -3.00 | 1194.33 |
| -2.00 | 1193.58 |
| -1.00 | 1192.88 |
| 0 | 1193.58 |
| 1.00 | 1194.15 |
| 2.00 | 1194.57 |
| 3.00 | 1194.42 |
| 4.00 | 1194.27 |
| 5.00 | 1194.12 |
| 6.00 | 1193.97 |
| 7.00 | 1193.84 |
| 8.00 | 1193.73 |
| 9.00 | 1193.46 |
| 10.00 | 1193.34 |
| 11.00 | 1193.22 |
| 12.00 | 1193.20 |
| 13.00 | 1193.13 |
| 14.00 | 1193.14 |
| 15.00 | |

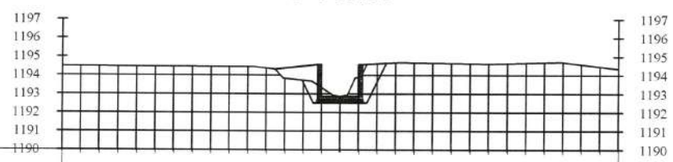
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for Construction
02 SEP 2019

## 6+850.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.44 |
| -14.00 | 1194.44 |
| -13.00 | 1194.44 |
| -12.00 | 1194.44 |
| -11.00 | 1194.43 |
| -10.00 | 1194.43 |
| -9.00 | 1194.43 |
| -8.00 | 1194.43 |
| -7.00 | 1194.43 |
| -6.00 | 1194.42 |
| -5.00 | 1194.42 |
| -4.00 | 1194.34 |
| -3.00 | 1193.88 |
| -2.00 | 1193.63 |
| -1.00 | 1193.30 |
| 0 | 1192.84 |
| 1.00 | 1193.30 |
| 2.00 | 1194.73 |
| 3.00 | 1194.69 |
| 4.00 | 1194.68 |
| 5.00 | 1194.73 |
| 6.00 | 1194.70 |
| 7.00 | 1194.40 |
| 8.00 | 1194.28 |
| 9.00 | 1194.16 |
| 10.00 | 1194.04 |
| 11.00 | 1193.93 |
| 12.00 | 1193.81 |
| 13.00 | 1193.69 |
| 14.00 | 1193.57 |
| 15.00 | 1193.45 |

## 6+900.00

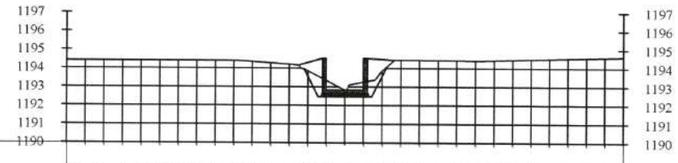


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.48 |
| -14.00 | 1194.48 |
| -13.00 | 1194.48 |
| -12.00 | 1194.47 |
| -11.00 | 1194.47 |
| -10.00 | 1194.47 |
| -9.00 | 1194.47 |
| -8.00 | 1194.46 |
| -7.00 | 1194.46 |
| -6.00 | 1194.46 |
| -5.00 | 1194.45 |
| -4.00 | 1194.38 |
| -3.00 | 1193.84 |
| -2.00 | 1193.73 |
| -1.00 | 1193.34 |
| 0 | 1192.88 |
| 1.00 | 1193.91 |
| 2.00 | 1194.62 |
| 3.00 | 1194.67 |
| 4.00 | 1194.67 |
| 5.00 | 1194.66 |
| 6.00 | 1194.64 |
| 7.00 | 1194.63 |
| 8.00 | 1194.62 |
| 9.00 | 1194.64 |
| 10.00 | 1194.67 |
| 11.00 | 1194.69 |
| 12.00 | 1194.70 |
| 13.00 | 1194.59 |
| 14.00 | 1194.47 |
| 15.00 | 1194.35 |

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: | 31/49 |

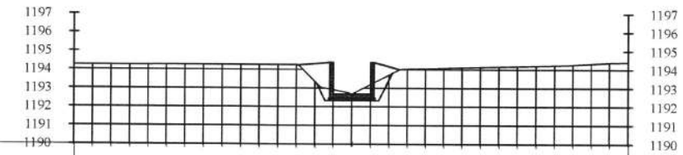
Ministry of Energy & Water
Directorate of Panjshir River Basin
2612
Sep 2019

## 6+950.00



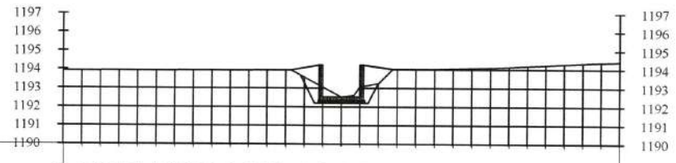

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.40 |
| -14.00 | 1194.40 |
| -13.00 | 1194.40 |
| -12.00 | 1194.40 |
| -11.00 | 1194.40 |
| -10.00 | 1194.40 |
| -9.00 | 1194.40 |
| -8.00 | 1194.40 |
| -7.00 | 1194.40 |
| -6.00 | 1194.40 |
| -5.00 | 1194.35 |
| -4.00 | 1194.28 |
| -3.00 | 1194.21 |
| -2.00 | 1193.86 |
| -1.00 | 1193.35 |
| 0 | 1192.83 |
| 1.00 | 1193.26 |
| 2.00 | 1193.85 |
| 3.00 | 1194.43 |
| 4.00 | 1194.43 |
| 5.00 | 1194.43 |
| 6.00 | 1194.43 |
| 7.00 | 1194.41 |
| 8.00 | 1194.43 |
| 9.00 | 1194.46 |
| 10.00 | 1194.48 |
| 11.00 | 1194.51 |
| 12.00 | 1194.54 |
| 13.00 | 1194.56 |
| 14.00 | 1194.59 |
| 15.00 | 1194.62 |

## 7+000.00



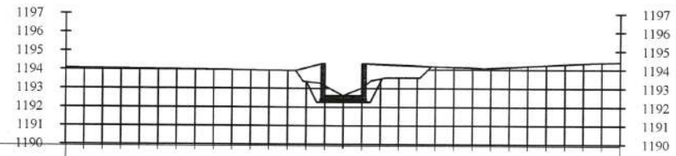

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.25 |
| -14.00 | 1194.25 |
| -13.00 | 1194.25 |
| -12.00 | 1194.25 |
| -11.00 | 1194.26 |
| -10.00 | 1194.26 |
| -9.00 | 1194.26 |
| -8.00 | 1194.26 |
| -7.00 | 1194.27 |
| -6.00 | 1194.26 |
| -5.00 | 1194.26 |
| -4.00 | 1194.26 |
| -3.00 | 1193.36 |
| -2.00 | 1192.92 |
| -1.00 | 1192.69 |
| 0 | 1193.20 |
| 1.00 | 1193.71 |
| 2.00 | 1194.04 |
| 3.00 | 1194.06 |
| 4.00 | 1194.09 |
| 5.00 | 1194.11 |
| 6.00 | 1194.14 |
| 7.00 | 1194.16 |
| 8.00 | 1194.19 |
| 9.00 | 1194.21 |
| 10.00 | 1194.24 |
| 11.00 | 1194.27 |
| 12.00 | 1194.32 |
| 13.00 | 1194.37 |
| 14.00 | 1194.40 |
| 15.00 | |

## 7+050.00




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1193.93 |
| -14.00 | 1193.93 |
| -13.00 | 1193.93 |
| -12.00 | 1193.94 |
| -11.00 | 1193.94 |
| -10.00 | 1193.94 |
| -9.00 | 1193.95 |
| -8.00 | 1193.95 |
| -7.00 | 1193.95 |
| -6.00 | 1193.96 |
| -5.00 | 1193.96 |
| -4.00 | 1193.96 |
| -3.00 | 1193.97 |
| -2.00 | 1193.58 |
| -1.00 | 1193.06 |
| 0 | 1192.54 |
| 1.00 | 1193.06 |
| 2.00 | 1193.25 |
| 3.00 | 1194.02 |
| 4.00 | 1194.02 |
| 5.00 | 1194.02 |
| 6.00 | 1194.05 |
| 7.00 | 1194.07 |
| 8.00 | 1194.10 |
| 9.00 | 1194.13 |
| 10.00 | 1194.18 |
| 11.00 | 1194.24 |
| 12.00 | 1194.29 |
| 13.00 | 1194.34 |
| 14.00 | 1194.38 |
| 15.00 | 1194.41 |

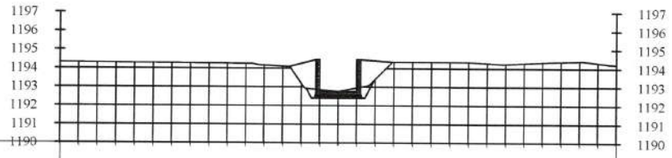
## 7+100.00




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.08 |
| -14.00 | 1194.07 |
| -13.00 | 1194.06 |
| -12.00 | 1194.05 |
| -11.00 | 1194.04 |
| -10.00 | 1194.03 |
| -9.00 | 1194.02 |
| -8.00 | 1194.01 |
| -7.00 | 1194.00 |
| -6.00 | 1193.99 |
| -5.00 | 1193.98 |
| -4.00 | 1193.97 |
| -3.00 | 1193.96 |
| -2.00 | 1193.36 |
| -1.00 | 1193.13 |
| 0 | 1192.62 |
| 1.00 | 1193.03 |
| 2.00 | 1193.52 |
| 3.00 | 1193.57 |
| 4.00 | 1193.57 |
| 5.00 | 1194.18 |
| 6.00 | 1194.15 |
| 7.00 | 1194.12 |
| 8.00 | 1194.10 |
| 9.00 | 1194.15 |
| 10.00 | 1194.20 |
| 11.00 | 1194.25 |
| 12.00 | 1194.31 |
| 13.00 | 1194.36 |
| 14.00 | 1194.39 |
| 15.00 | 1194.41 |

Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for construction

## 7+150.00




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.32 |
| -14.00 | 1194.31 |
| -13.00 | 1194.30 |
| -12.00 | 1194.30 |
| -11.00 | 1194.29 |
| -10.00 | 1194.28 |
| -9.00 | 1194.28 |
| -8.00 | 1194.27 |
| -7.00 | 1194.26 |
| -6.00 | 1194.26 |
| -5.00 | 1194.25 |
| -4.00 | 1194.16 |
| -3.00 | 1194.11 |
| -2.00 | 1193.19 |
| -1.00 | 1192.85 |
| 0 | 1192.76 |
| 1.00 | 1192.95 |
| 2.00 | 1193.42 |
| 3.00 | 1194.34 |
| 4.00 | 1194.34 |
| 5.00 | 1194.34 |
| 6.00 | 1194.34 |
| 7.00 | 1194.34 |
| 8.00 | 1194.28 |
| 9.00 | 1194.23 |
| 10.00 | 1194.28 |
| 11.00 | 1194.33 |
| 12.00 | 1194.37 |
| 13.00 | 1194.40 |
| 14.00 | 1194.31 |
| 15.00 | 1194.22 |

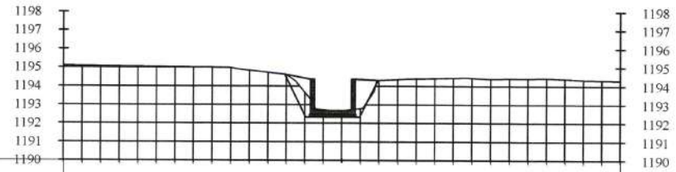
## 7+200.00

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.58 |
| -14.00 | 1194.56 |
| -13.00 | 1194.55 |
| -12.00 | 1194.54 |
| -11.00 | 1194.53 |
| -10.00 | 1194.52 |
| -9.00 | 1194.51 |
| -8.00 | 1194.52 |
| -7.00 | 1194.55 |
| -6.00 | 1194.49 |
| -5.00 | 1194.43 |
| -4.00 | 1194.37 |
| -3.00 | 1194.27 |
| -2.00 | 1193.32 |
| -1.00 | 1192.77 |
| 0 | 1192.68 |
| 1.00 | 1192.87 |
| 2.00 | 1193.68 |
| 3.00 | 1194.34 |
| 4.00 | 1194.38 |
| 5.00 | 1194.39 |
| 6.00 | 1194.39 |
| 7.00 | 1194.39 |
| 8.00 | 1194.37 |
| 9.00 | 1194.34 |
| 10.00 | 1194.32 |
| 11.00 | 1194.31 |
| 12.00 | 1194.29 |
| 13.00 | 1194.28 |
| 14.00 | 1194.26 |
| 15.00 | 1194.25 |

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA. APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER<br>PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI<br>ENGINEER<br>(HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID<br>QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI<br>ACTING CHIEF OF PARTY | | SHEET NO.<br>32/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

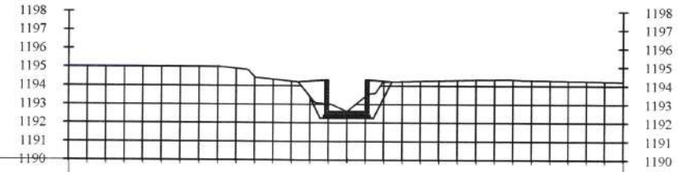
Ministry of Energy & Water
Directorate of Panj-Ab River Basin
Sep 2019

## 7+250.00



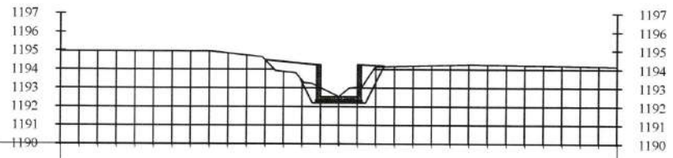
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.08 |
| -14.00 | 1195.07 |
| -13.00 | 1195.06 |
| -12.00 | 1195.05 |
| -11.00 | 1195.04 |
| -10.00 | 1195.03 |
| -9.00 | 1195.02 |
| -8.00 | 1195.01 |
| -7.00 | 1195.00 |
| -6.00 | 1194.97 |
| -5.00 | 1194.84 |
| -4.00 | 1194.73 |
| -3.00 | 1194.62 |
| -2.00 | 1193.65 |
| -1.00 | 1192.72 |
| 0 | 1192.66 |
| 1.00 | 1192.79 |
| 2.00 | 1194.31 |
| 3.00 | 1194.35 |
| 4.00 | 1194.39 |
| 5.00 | 1194.41 |
| 6.00 | 1194.44 |
| 7.00 | 1194.44 |
| 8.00 | 1194.40 |
| 9.00 | 1194.41 |
| 10.00 | 1194.41 |
| 11.00 | 1194.42 |
| 12.00 | 1194.38 |
| 13.00 | 1194.33 |
| 14.00 | 1194.31 |
| 15.00 | 1194.30 |

## 7+300.00



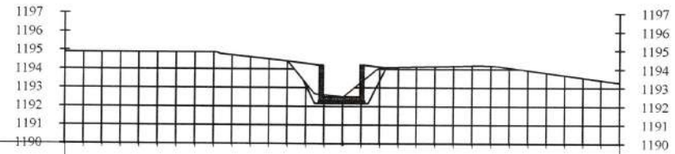
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1195.02 |
| -14.00 | 1195.02 |
| -13.00 | 1195.02 |
| -12.00 | 1195.02 |
| -11.00 | 1195.02 |
| -10.00 | 1195.02 |
| -9.00 | 1195.02 |
| -8.00 | 1195.02 |
| -7.00 | 1195.02 |
| -6.00 | 1194.92 |
| -5.00 | 1194.48 |
| -4.00 | 1194.34 |
| -3.00 | 1194.24 |
| -2.00 | 1193.43 |
| -1.00 | 1193.03 |
| 0 | 1192.61 |
| 1.00 | 1193.42 |
| 2.00 | 1194.20 |
| 3.00 | 1194.23 |
| 4.00 | 1194.25 |
| 5.00 | 1194.28 |
| 6.00 | 1194.30 |
| 7.00 | 1194.32 |
| 8.00 | 1194.33 |
| 9.00 | 1194.33 |
| 10.00 | 1194.30 |
| 11.00 | 1194.28 |
| 12.00 | 1194.27 |
| 13.00 | 1194.25 |
| 14.00 | 1194.24 |
| 15.00 | 1194.22 |

## 7+350.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.96 |
| -14.00 | 1194.96 |
| -13.00 | 1194.96 |
| -12.00 | 1194.96 |
| -11.00 | 1194.96 |
| -10.00 | 1194.96 |
| -9.00 | 1194.96 |
| -8.00 | 1194.96 |
| -7.00 | 1194.96 |
| -6.00 | 1194.86 |
| -5.00 | 1194.76 |
| -4.00 | 1194.51 |
| -3.00 | 1193.89 |
| -2.00 | 1193.41 |
| -1.00 | 1193.02 |
| 0 | 1192.55 |
| 1.00 | 1193.05 |
| 2.00 | 1194.14 |
| 3.00 | 1194.16 |
| 4.00 | 1194.19 |
| 5.00 | 1194.21 |
| 6.00 | 1194.23 |
| 7.00 | 1194.26 |
| 8.00 | 1194.25 |
| 9.00 | 1194.24 |
| 10.00 | 1194.22 |
| 11.00 | 1194.21 |
| 12.00 | 1194.20 |
| 13.00 | 1194.18 |
| 14.00 | 1194.17 |
| 15.00 | 1194.16 |

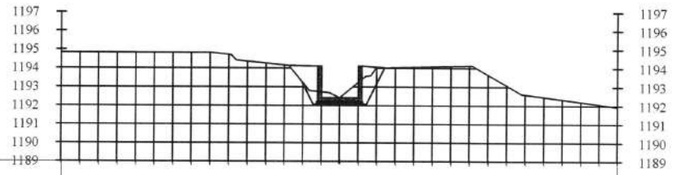
## 7+400.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.89 |
| -14.00 | 1194.89 |
| -13.00 | 1194.89 |
| -12.00 | 1194.89 |
| -11.00 | 1194.89 |
| -10.00 | 1194.89 |
| -9.00 | 1194.89 |
| -8.00 | 1194.89 |
| -7.00 | 1194.74 |
| -6.00 | 1194.64 |
| -5.00 | 1194.53 |
| -4.00 | 1194.43 |
| -3.00 | 1193.25 |
| -2.00 | 1192.62 |
| -1.00 | 1192.48 |
| 0 | 1193.29 |
| 1.00 | 1194.07 |
| 2.00 | 1194.10 |
| 3.00 | 1194.12 |
| 4.00 | 1194.15 |
| 5.00 | 1194.17 |
| 6.00 | 1194.19 |
| 7.00 | 1194.19 |
| 8.00 | 1194.07 |
| 9.00 | 1193.94 |
| 10.00 | 1193.81 |
| 11.00 | 1193.68 |
| 12.00 | 1193.55 |
| 13.00 | 1193.42 |
| 14.00 | 1193.29 |
| 15.00 | |

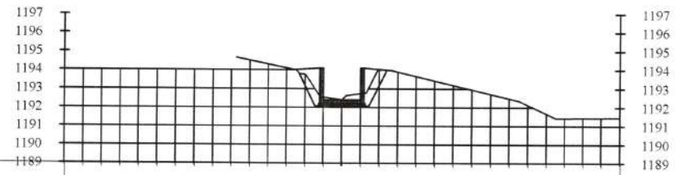
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for Construction
02 SEP 2013

## 7+450.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | 1194.83 |
| -14.00 | 1194.83 |
| -13.00 | 1194.83 |
| -12.00 | 1194.83 |
| -11.00 | 1194.83 |
| -10.00 | 1194.83 |
| -9.00 | 1194.83 |
| -8.00 | 1194.83 |
| -7.00 | 1194.83 |
| -6.00 | 1194.73 |
| -5.00 | 1194.37 |
| -4.00 | 1194.27 |
| -3.00 | 1194.16 |
| -2.00 | 1193.21 |
| -1.00 | 1192.73 |
| 0 | 1192.42 |
| 1.00 | 1193.23 |
| 2.00 | 1194.01 |
| 3.00 | 1194.03 |
| 4.00 | 1194.06 |
| 5.00 | 1194.08 |
| 6.00 | 1194.11 |
| 7.00 | 1194.13 |
| 8.00 | 1193.65 |
| 9.00 | 1193.08 |
| 10.00 | 1192.59 |
| 11.00 | 1192.46 |
| 12.00 | 1192.33 |
| 13.00 | 1192.20 |
| 14.00 | 1192.07 |
| 15.00 | 1191.94 |

## 7+500.00

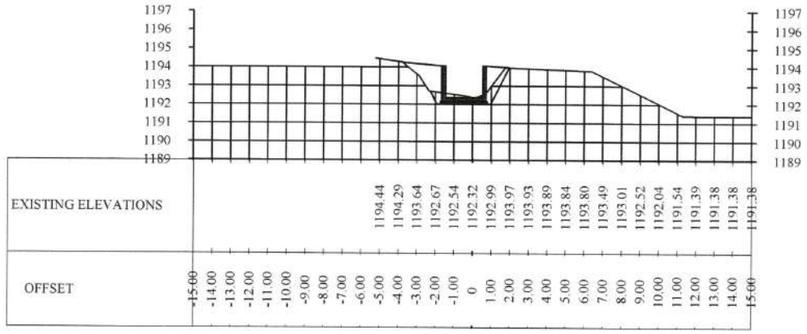


| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | |
| -14.00 | |
| -13.00 | |
| -12.00 | |
| -11.00 | |
| -10.00 | |
| -9.00 | |
| -8.00 | |
| -7.00 | |
| -6.00 | |
| -5.00 | 1194.51 |
| -4.00 | 1194.31 |
| -3.00 | 1194.11 |
| -2.00 | 1193.76 |
| -1.00 | 1192.55 |
| 0 | 1192.41 |
| 1.00 | 1192.74 |
| 2.00 | 1194.01 |
| 3.00 | 1193.89 |
| 4.00 | 1193.65 |
| 5.00 | 1193.42 |
| 6.00 | 1193.18 |
| 7.00 | 1192.94 |
| 8.00 | 1192.70 |
| 9.00 | 1192.46 |
| 10.00 | 1192.13 |
| 11.00 | 1191.67 |
| 12.00 | 1191.43 |
| 13.00 | 1191.43 |
| 14.00 | 1191.44 |
| 15.00 | 1191.45 |

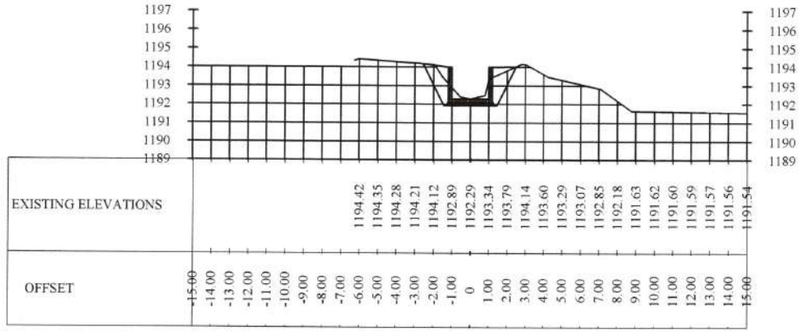
Ministry of Energy & Water
Central Directorate of Water Affairs
2012
Sep 2012

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 33/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

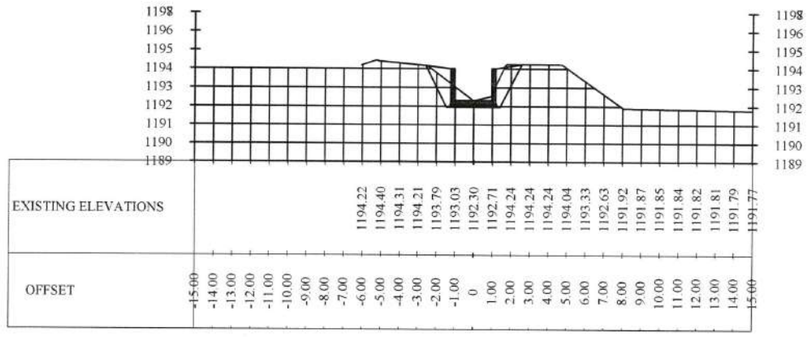
## 7+550.00



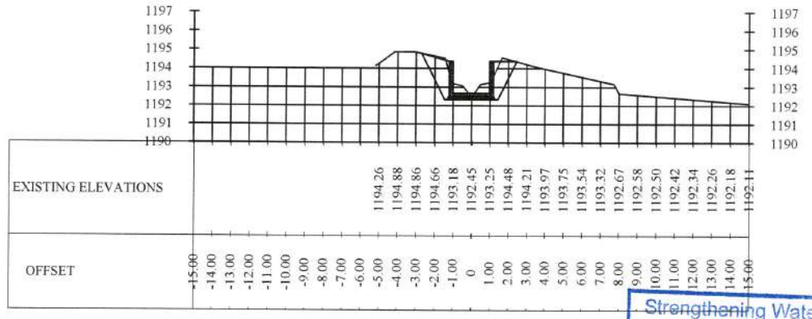

## 7+600.00




## 7+650.00

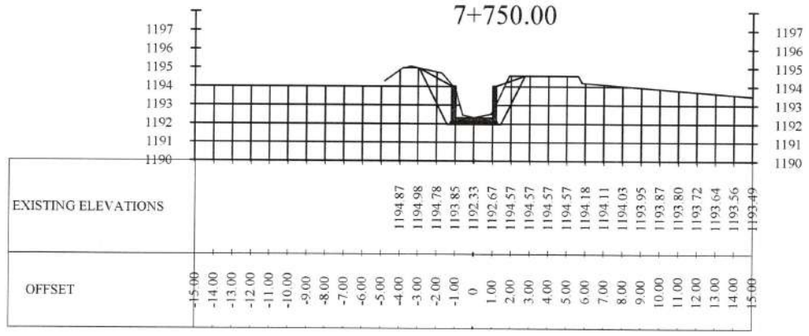



## 7+700.00

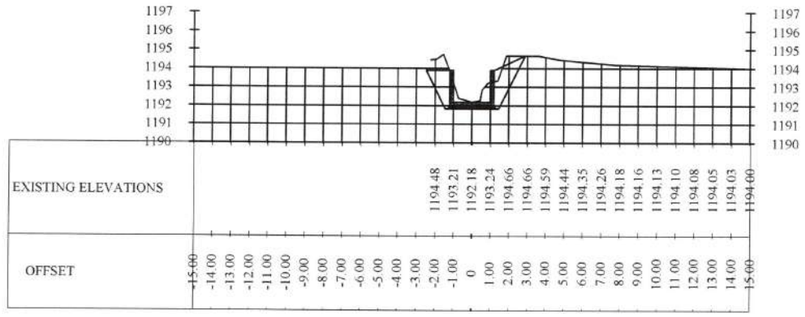



Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for construction
10 SEP 2019

## 7+750.00



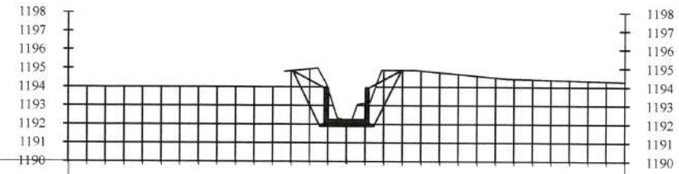

## 7+800.00




| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEWRBA APPROVAL | SHEET NO. 34/49 |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: | |

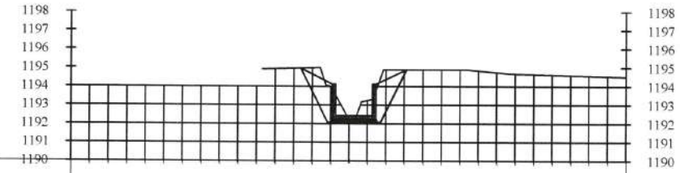
SEP 2019

## 7+850.00



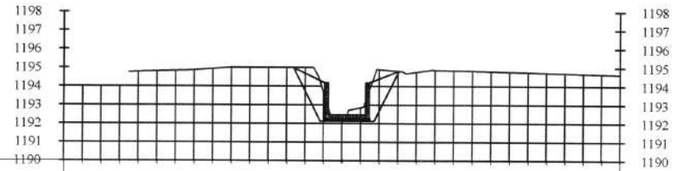
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | |
| -14.00 | |
| -13.00 | |
| -12.00 | |
| -11.00 | |
| -10.00 | |
| -9.00 | |
| -8.00 | |
| -7.00 | |
| -6.00 | |
| -5.00 | |
| -4.00 | |
| -3.00 | 1194.86 |
| -2.00 | 1194.96 |
| -1.00 | 1193.89 |
| 0 | 1192.19 |
| 1.00 | 1193.12 |
| 2.00 | 1194.89 |
| 3.00 | 1194.89 |
| 4.00 | 1194.86 |
| 5.00 | 1194.77 |
| 6.00 | 1194.68 |
| 7.00 | 1194.59 |
| 8.00 | 1194.50 |
| 9.00 | 1194.43 |
| 10.00 | 1194.41 |
| 11.00 | 1194.38 |
| 12.00 | 1194.36 |
| 13.00 | 1194.33 |
| 14.00 | 1194.31 |
| 15.00 | 1194.28 |

## 7+900.00



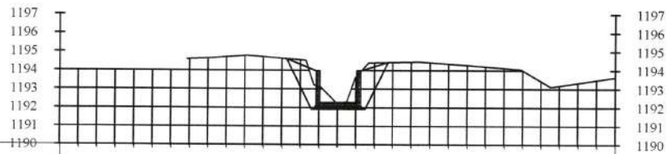
| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | |
| -14.00 | |
| -13.00 | |
| -12.00 | |
| -11.00 | |
| -10.00 | |
| -9.00 | |
| -8.00 | |
| -7.00 | |
| -6.00 | |
| -5.00 | |
| -4.00 | 1194.94 |
| -3.00 | 1194.97 |
| -2.00 | 1194.99 |
| -1.00 | 1193.99 |
| 0 | 1192.20 |
| 1.00 | 1193.24 |
| 2.00 | 1194.89 |
| 3.00 | 1194.89 |
| 4.00 | 1194.89 |
| 5.00 | 1194.89 |
| 6.00 | 1194.89 |
| 7.00 | 1194.83 |
| 8.00 | 1194.74 |
| 9.00 | 1194.67 |
| 10.00 | 1194.64 |
| 11.00 | 1194.62 |
| 12.00 | 1194.59 |
| 13.00 | 1194.57 |
| 14.00 | 1194.54 |
| 15.00 | 1194.51 |

## 7+950.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | |
| -14.00 | |
| -13.00 | |
| -12.00 | |
| -11.00 | 1194.78 |
| -10.00 | 1194.81 |
| -9.00 | 1194.84 |
| -8.00 | 1194.87 |
| -7.00 | 1194.94 |
| -6.00 | 1195.01 |
| -5.00 | 1195.01 |
| -4.00 | 1195.01 |
| -3.00 | 1195.01 |
| -2.00 | 1195.01 |
| -1.00 | 1193.66 |
| 0 | 1192.20 |
| 1.00 | 1192.85 |
| 2.00 | 1194.88 |
| 3.00 | 1194.81 |
| 4.00 | 1194.75 |
| 5.00 | 1194.86 |
| 6.00 | 1194.85 |
| 7.00 | 1194.83 |
| 8.00 | 1194.80 |
| 9.00 | 1194.78 |
| 10.00 | 1194.75 |
| 11.00 | 1194.73 |
| 12.00 | 1194.70 |
| 13.00 | 1194.68 |
| 14.00 | 1194.65 |
| 15.00 | 1194.63 |

## 8+000.00



| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -15.00 | |
| -14.00 | |
| -13.00 | |
| -12.00 | |
| -11.00 | |
| -10.00 | |
| -9.00 | |
| -8.00 | 1194.61 |
| -7.00 | 1194.63 |
| -6.00 | 1194.70 |
| -5.00 | 1194.77 |
| -4.00 | 1194.72 |
| -3.00 | 1194.64 |
| -2.00 | 1194.56 |
| -1.00 | 1193.15 |
| 0 | 1192.20 |
| 1.00 | 1193.63 |
| 2.00 | 1194.41 |
| 3.00 | 1194.43 |
| 4.00 | 1194.45 |
| 5.00 | 1194.42 |
| 6.00 | 1194.35 |
| 7.00 | 1194.28 |
| 8.00 | 1194.20 |
| 9.00 | 1194.13 |
| 10.00 | 1194.00 |
| 11.00 | 1193.43 |
| 12.00 | 1193.19 |
| 13.00 | 1193.34 |
| 14.00 | 1193.49 |
| 15.00 | 1193.63 |

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction
12 SEP 2019

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | CROSS SECTION | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 35/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Sep 2019

# BATASH CANAL STRUCTURE LIST ALONG WITH GPS COORDINATES

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED LINING

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 5+225 | Start of Proposed Lining | 37.11417 | 70.56236 | 1193.58 | |
| 2 | 8+000 | End of Proposed Lining | 37.092764 | 70.54846 | 1192.2 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED BOX CULVERTS

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 6+295 | Proposed Box Culvert-1 | 37.10464 | 70.55937 | 1193.37 | |
| 2 | 7+085 | Proposed Box Culvert-2 | 37.09830 | 70.55688 | 1192.50 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED SLAB CULVERTS

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 10+420 | Proposed Slab Culvert-1 | 37.09334 | 70.52394 | 1178.41 | |
| 2 | 10+570 | Proposed Slab Culvert-2 | 37.09368 | 70.52315 | 1178.33 | |
| 3 | 10+930 | Proposed Slab Culvert-3 | 37.09505 | 70.52014 | 1177.76 | |
| 4 | 11+445 | Proposed Slab Culvert-4 | 37.09826 | 70.51660 | 1176.99 | |
| 5 | 12+410 | Proposed Slab Culvert-5 | 37.10552 | 70.51165 | 1176.21 | |
| 6 | 13+500 | Proposed Slab Culvert-6 | 37.11196 | 70.51436 | 1172.71 | |
| 7 | 13+770 | Proposed Slab Culvert-7 | 37.11365 | 70.51542 | 1171.23 | |
| 8 | 14+820 | Proposed Slab Culvert-8 | 37.11876 | 70.51168 | 1166.34 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED FOOT CULVERTS

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 5+400 | Proposed Foot Culvert (Type-1)-1 | 37.11212 | 70.56275 | 1193.44 | |
| 2 | 5+600 | Proposed Foot Culvert (Type-1)-2 | 37.11120 | 70.56211 | 1193.43 | |
| 3 | 5+800 | Proposed Foot Culvert (Type-1)-3 | 37.10945 | 70.56165 | 1193.4 | |
| 4 | 6+000 | Proposed Foot Culvert (Type-1)-4 | 37.10762 | 70.56115 | 1193.4 | |
| 5 | 6+200 | Proposed Foot Culvert (Type-1)-5 | 37.10575 | 70.56050 | 1193.37 | |
| 6 | 6+430 | Proposed Foot Culvert (Type-1)-6 | 37.10533 | 70.55376 | 1193.29 | |
| 7 | 6+790 | Proposed Foot Culvert (Type-1)-7 | 37.10206 | 70.55310 | 1192.99 | |
| 8 | 6+955 | Proposed Foot Culvert (Type-1)-8 | 37.10205 | 70.55309 | 1192.82 | |
| 9 | 7+215 | Proposed Foot Culvert (Type-1)-9 | 37.09800 | 70.55642 | 1192.56 | |
| 10 | 7+495 | Proposed Foot Culvert (Type-1)-10 | 37.09730 | 70.55597 | 1192.41 | |
| 11 | 7+680 | Proposed Foot Culvert (Type-1)-11 | 37.09510 | 70.55336 | 1192.47 | |
| 12 | 13+030 | Proposed Foot Culvert (Type-2)-12 | 37.11080 | 70.50914 | 1175.77 | |
| 13 | 13+255 | Proposed Foot Culvert (Type-2)-13 | 37.11127 | 70.51115 | 1174.06 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED RETAINING WALL

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 13+000 | Proposed Retaining Wall, L=50m | 37.11089 | 70.50926 | 1174.77 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED WASH INLET

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 7+690 | Proposed Wash Inlet | 37.09379 | 70.5523 | 1192.45 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED TURNOUT

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 6+305 | Proposed Turnout (Type-1)-1 | 37.09730 | 70.55597 | 1192.76 | |

## BATASH CANAL STRUCTURE LIST AND GPS COORDINATES FOR PROPOSED TURNOUT

| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 2 | 12+550 | Proposed Turnout (Type-2)-2 | 37.10741 | 70.51045 | 1176.17 | |
| 3 | 12+575 | Proposed Turnout (Type-2)-3 | 37.10798 | 70.51009 | 1176.14 | |
| 4 | 12+875 | Proposed Turnout (Type-2)-4 | 37.10937 | 70.50946 | 1175.82 | |
| 5 | 12+955 | Proposed Turnout (Type-2)-5 | 37.11005 | 70.50926 | 1175.72 | |
| 6 | 13+035 | Proposed Turnout (Type-2)-6 | 37.11080 | 70.50914 | 1175.75 | |
| 7 | 13+060 | Proposed Turnout (Type-2)-7 | 37.11089 | 70.50947 | 1174.85 | |
| 8 | 13+670 | Proposed Turnout (Type-2)-8 | 37.11217 | 70.51568 | 1171.88 | |
| 9 | 13+785 | Proposed Turnout (Type-2)-9 | 37.11365 | 70.51542 | 1171.11 | |
| 10 | 13+910 | Proposed Turnout (Type-2)-10 | 37.11409 | 70.51524 | 1169.79 | |
| 11 | 13+955 | Proposed Turnout (Type-2)-11 | 37.11482 | 70.51465 | 1169.13 | |
| 12 | 14+195 | Proposed Turnout (Type-2)-12 | 37.11538 | 70.51415 | 1167.23 | |
| 13 | 14+325 | Proposed Turnout (Type-2)-13 | 37.11611 | 70.51333 | 1167.16 | |
| 14 | 14+400 | Proposed Turnout (Type-2)-14 | 37.11652 | 37.11652 | 1167.13 | |
| 15 | 14+610 | Proposed Turnout (Type-2)-15 | 37.11749 | 70.51058 | 1166.82 | |
| 16 | 14+695 | Proposed Turnout (Type-2)-16 | 37.11809 | 70.51070 | 1166.41 | |
| 17 | 14+820 | Proposed Turnout (Type-2)-17 | 37.11876 | 70.51168 | 1166.34 | |
| 18 | 14+910 | Proposed Turnout (Type-2)-18 | 37.11932 | 70.51230 | 1165.70 | |
| 19 | 15+100 | Proposed Turnout (Type-2)-19 | 37.12028 | 70.51231 | 1162.02 | |
| 20 | 15+125 | Proposed Turnout (Type-2)-20 | 37.12087 | 70.51269 | 1161.11 | |
| 21 | 15+215 | Proposed Turnout (Type-2)-21 | 37.12187 | 70.51319 | 1160.93 | |
| 22 | 15+260 | Proposed Turnout (Type-2)-22 | 37.12219 | 70.51335 | 1160.84 | |
| 23 | 15+285 | Proposed Turnout (Type-2)-23 | 37.12275 | 70.51352 | 1160.81 | |
| 24 | 15+400 | Proposed Turnout (Type-2)-24 | 37.12421 | 70.51271 | 1160.70 | |
| 25 | 15+605 | Proposed Turnout (Type-2)-25 | 37.12511 | 70.51276 | 1160.53 | |
| 26 | 15+725 | Proposed Turnout (Type-2)-26 | 37.12652 | 70.51277 | 1160.37 | |
| 27 | 15+915 | Proposed Turnout (Type-2)-27 | 37.12810 | 70.51270 | 1160.24 | |
| 28 | 15+985 | Proposed Turnout (Type-2)-28 | 37.12853 | 70.51316 | 1160.01 | |
| 29 | 16+100 | Proposed Turnout (Type-2)-29 | 37.12924 | 70.51415 | 1159.91 | |
| 30 | 16+170 | Proposed Turnout (Type-2)-30 | 37.12980 | 70.51439 | 1159.93 | |
| 31 | 16+225 | Proposed Turnout (Type-2)-31 | 37.13028 | 70.51451 | 1159.84 | |
| 32 | 16+290 | Proposed Turnout (Type-2)-32 | 37.13065 | 70.51438 | 1159.87 | |
| 33 | 16+510 | Proposed Turnout (Type-2)-33 | 37.13286 | 70.51391 | 1160.14 | |
| 34 | 16+570 | Proposed Turnout (Type-2)-34 | 37.13335 | 70.51364 | 1159.30 | |
| 35 | 16+690 | Proposed Turnout (Type-2)-35 | 37.13440 | 70.51370 | 1158.58 | |
| 36 | 16+790 | Proposed Turnout (Type-2)-36 | 37.13528 | 70.51288 | 1157.65 | |
| 37 | 17+050 | Proposed Turnout (Type-2)-37 | 37.13759 | 70.51302 | 1155.13 | |
| 38 | 17+520 | Proposed Turnout (Type-2)-38 | 37.14173 | 70.51443 | 1149.08 | |
| 39 | 17+570 | Proposed Turnout (Type-2)-39 | 37.14220 | 70.51485 | 1148.70 | |
| 40 | 17+755 | Proposed Turnout (Type-2)-40 | 37.14364 | 70.51464 | 1147.87 | |
| 41 | 18+345 | Proposed Turnout (Type-2)-41 | 37.14872 | 70.51638 | 1145.50 | |
| 42 | 18+510 | Proposed Turnout (Type-2)-42 | 37.14990 | 70.51557 | 1144.95 | |

## BATASH MAIN CANAL EXISTING STRUCTURE AND CORDINATE LIST

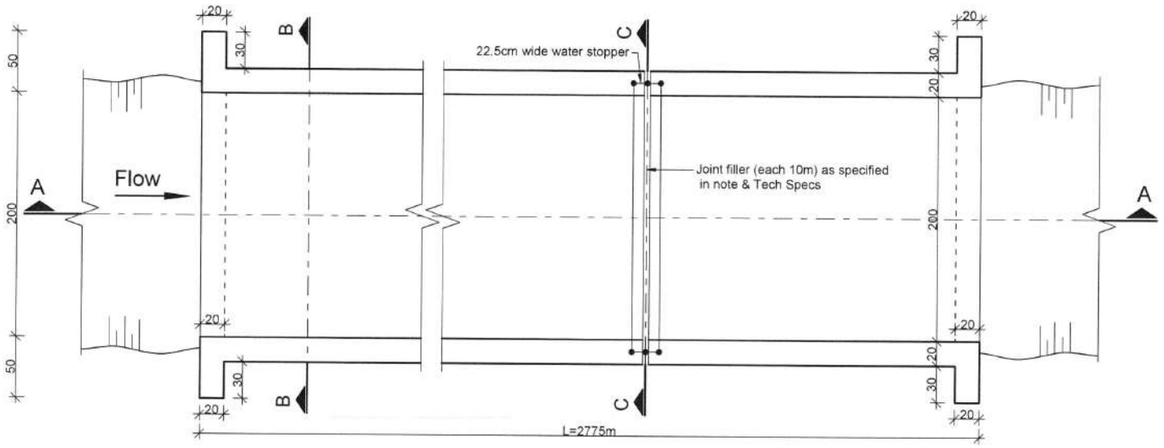
| No | STATION | Description | NORTHING | EASTHING | ELEVATION | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 0+000 | Intake and Start Lining | 37.09133 | 70.60126 | 1201.26 | |
| 2 | 5+225 | End of Canal Lining | 37.11417 | 70.56236 | 1193.58 | |
| 3 | 0+650 | Spillway | 37.09800 | 70.60100 | 1199.16 | |
| 4 | 0+750 | Spillway | 37.09900 | 70.60000 | 1198.01 | |
| 5 | 0+775 | Siphon | 37.09900 | 70.60000 | 1198.00 | |
| 6 | 0+985 | Drop | 37.09900 | 70.59800 | 1197.30 | |
| 7 | 2+415 | Siphon | 37.10400 | 70.58400 | 1195.74 | |
| 8 | 4+125 | Divider | 37.11600 | 70.57400 | 1194.60 | |
| 9 | 4+225 | Culvert | 37.11600 | 70.57300 | 1194.20 | |
| 10 | 4+300 | Culvert | 37.11600 | 70.57200 | 1194.69 | |
| 11 | 4+450 | Culvert | 37.11700 | 70.57000 | 1193.23 | |
| 12 | 4+700 | Culvert | 37.11600 | 70.56800 | 1193.35 | |
| 13 | 5+200 | Culvert | 37.11400 | 70.56200 | 1193.28 | |
| 14 | 5+900 | Culvert | 37.10800 | 70.56100 | 1193.01 | |
| 15 | 6+310 | Supper Passage | 37.10500 | 70.55900 | 1193.20 | |
| 16 | 6+500 | Culvert | 37.10300 | 70.55800 | 1193.11 | |
| 17 | 6+680 | Culvert | 37.10100 | 70.55800 | 1192.92 | |
| 18 | 8+040 | Culvert | 37.09200 | 70.54900 | 1192.00 | |
| 19 | 8+765 | Culvert | 37.09000 | 70.54200 | 1190.95 | |
| 20 | 9+000 | Aqueduct | 37.08900 | 70.53900 | 1190.46 | |
| 21 | 9+825 | Culvert | 37.09000 | 70.53000 | 1189.55 | |
| 22 | 9+850 | Drop | 37.09000 | 70.53000 | 1189.39 | |
| 23 | 10+260 | Aqueduct | 37.09200 | 70.52700 | 1178.06 | |
| 24 | 10+300 | Culvert | 37.09200 | 70.52600 | 1178.31 | |
| 25 | 10+350 | Culvert | 37.09200 | 70.52600 | 1178.42 | |
| 26 | 11+540 | Aqueduct | 37.09900 | 70.51600 | 1176.72 | |
| 27 | 11+795 | Aqueduct | 37.10100 | 70.51500 | 1176.51 | |
| 28 | 11+870 | Aqueduct | 37.10200 | 70.51400 | 1176.68 | |
| 29 | 12+550 | Culvert | 37.10700 | 70.51100 | 1176.17 | |
| 30 | 13+000 | Culvert | 37.11100 | 70.50900 | 1175.75 | |
| 31 | 13+050 | Culvert | 37.11100 | 70.50900 | 1174.99 | |
| 32 | 15+175 | Culvert | 37.13200 | 70.51300 | 1160.85 | |
| 33 | 16+225 | Culvert | 37.13200 | 70.51500 | 1159.86 | |
| 34 | 16+645 | Aqueduct | 37.13400 | 70.51400 | 1159.03 | |
| 35 | 17+820 | Culvert | 37.14400 | 70.51500 | 1147.83 | |
| 36 | 18+330 | Supper Passage | 37.14800 | 70.51600 | 1146.05 | |
| 37 | 18+350 | Culvert | 37.14900 | 70.51600 | 1145.44 | |
| 38 | 18+600 | Retaining Wall | 37.15100 | 70.51500 | 1144.55 | |

Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for Construction
12 JUL 2019

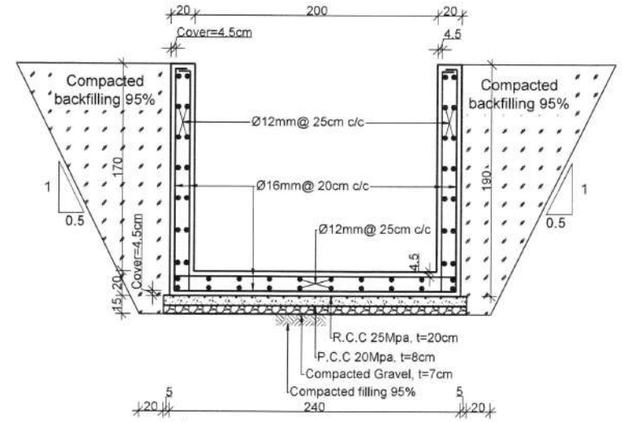
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | STRUCTURE LIST ALONG WITH GPS COORDINATES | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 36/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: Sep 2019 | |

TABLE OF LINING

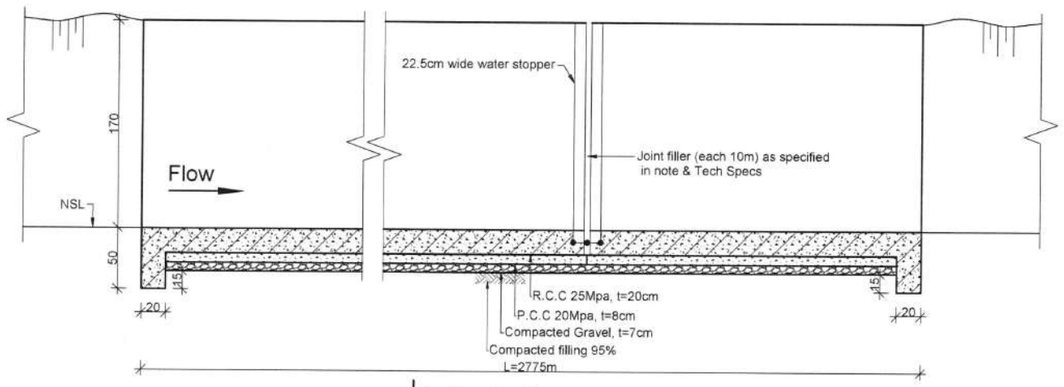
| No | Canal Lining Detail | Dimensions (M) | | | GPS Coordinate | | Canal Slope | Flow Depth | Discharge |
|---|---|---|---|---|---|---|---|---|---|
| | | Length | High | Wide | Start (St: 5+225) | End (St: 8+000) | | | |
| 1 | Batash Main Canal | 2775 | 1.7 | 2.0 | N: 37.11417, E: 70.56236 | N: 37.092764, E: 70.54846 | 0.00047 | 1.2 | 2.67 cum |



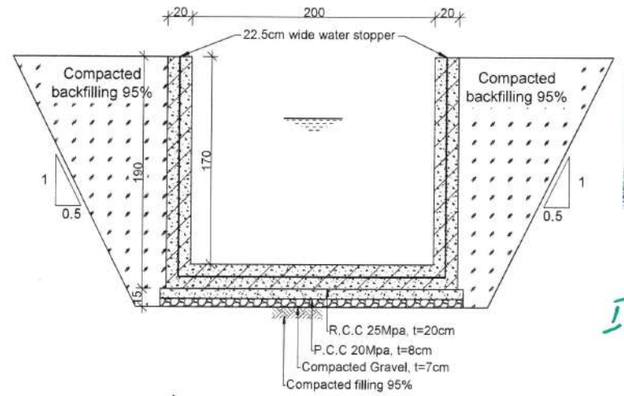

Plan of R.C.C Lining, L=2775m
REF. St: (5+225 to 8+000) SCALE: 1:50




Section "B-B"
REF. SCALE: 1:50




Section "A-A"
REF. SCALE: 1:50




Section "C-C"
REF. SCALE: 1:50

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction

02 SEP 2019

Note:

1. Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2. The construction joints are recommended after each segment of 10M length of R.C.C along the canal lining.
3. The joint's gape will be around (3.5 to 4)cm and should be filled properly as specified in technical specification.
4. Installation of PVC or HDPE water stoppers must be securely positioned in the forms to prevent deflection or misalignment during concrete placement. Type of water stopper shall be conform with ASTM D412 and ASTM D2240.
5. Excavation for the Foundation should be checked by the site Engineer as per drawing and Tech Specs.
6. Sand and Gravel should be clean and free from organic material.
7. All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification.
8. Fresh cement to be used.
9. Clean water should be used (suitable for drinking).
10. Angle of walls to be adjusted by SWIM engineer as per site conditions.
11. Compressive strength of plain cement concrete is 20MPa
12. Compressive strength of Reinforced cement concrete is 25MPa
13. Mild steel Grad 60 rebar to be used.
14. The canal alignment should be straight as possible, and curved the alignment breaks.

**Bar Schedule** (No. of bars and total bar length presented for 1m Lining)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) a | b | c | d | e | Total length - ***varies*** (metres) |
|---|---|---|---|---|---|---|---|---|---|
| Slab | 16 | a b a | 5 | 110 | 2300 | | | | 12.60 |
| Slab | 16 | a b a | 5 | 110 | 2300 | | | | 12.60 |
| Slab | 12 | a | 4 | 1000 | | | | | 4.00 |
| Slab | 12 | | 4 | 1000 | | | | | 4.00 |
| Wall | 16 | a b a | 5 | 110 | 1800 | | | | 10.10 |
| Wall | 16 | a b a | 5 | 110 | 1800 | | | | 10.10 |
| Wall | 12 | a | 4 | 1000 | | | | | 4.00 |
| Wall | 12 | a | 4 | 1000 | | | | | 4.00 |

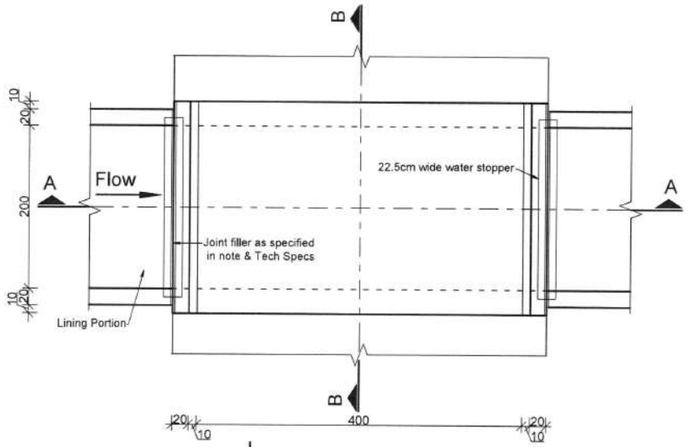
**Note:** No. of bars and total bar length Should be calculate as per required length

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | R.C.C Lining Plan and Sections ST: (5+225 to 8+000) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: | 37/49 |

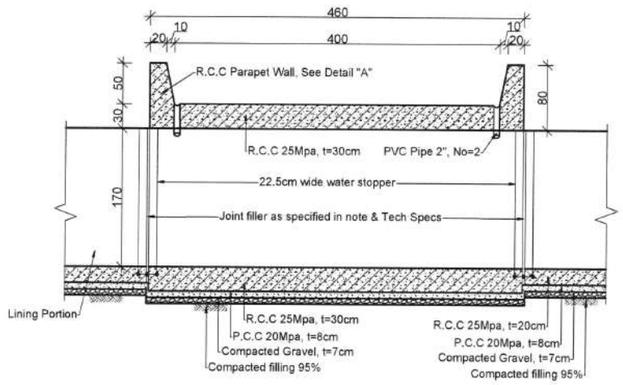
Sep 2019

TABLE OF BOX CULVERT

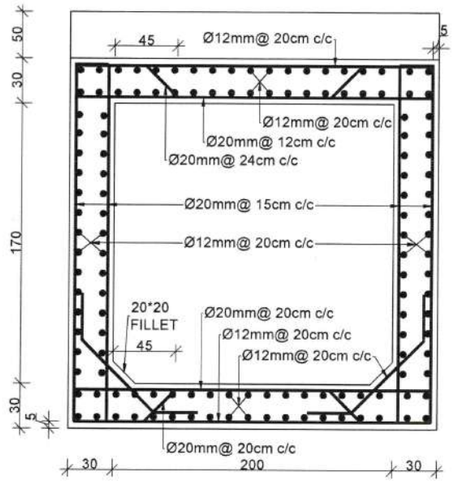
| No | Station | Description | Dimensions (M) | | | GPS Point | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | Length | High | Wide | North | East | |
| 1 | 6+295 | Box Culvert | 4.0 | 1.70 | 2.00 | 37.10464 | 70.55937 | |
| 2 | 7+085 | Box Culvert | 4.0 | 1.70 | 2.00 | 37.09830 | 70.55688 | |



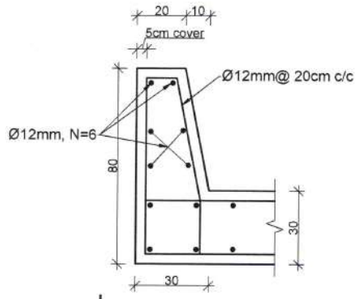

Plan of Box Culvert
REF. SCALE: 1:75



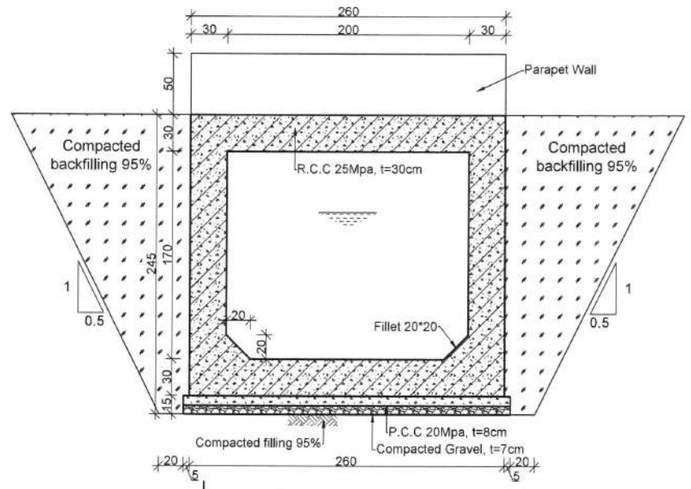

Section "A-A"
REF. SCALE: 1:75




SECTION "B-B", REBAR DETAILS OF TOP SLAB, BOTTOM SLAB, & VERTICAL MEMBERS
REF. SCALE: 1:75




Detail "A"
REF. SCALE: 1:25




Section 'B-B'
REF. SCALE: 1:50

## Bar Schedule (No. of bars and total bar length presented for 1m Box Culvert)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) a | b | c | d | e | Total length - ***varies*** (metres) |
|---|---|---|---|---|---|---|---|---|---|
| Bot Slab | 12 | a b a | 5 | 200 | 2500 | | | | 14.50 |
| Bot Slab | 20 | a b a | 5 | 200 | 2500 | | | | 14.50 |
| Bot Slab | 12 | a | 5 | 1000 | | | | | 5.00 |
| Bot Slab | 12 | | 5 | 1000 | | | | | 5.00 |
| Bot Slab | 12 | a b c b a | 5 | 400 | 425 | 1100 | | | 13.75 |
| Bot Slab | 12 | a a b | 5 | 300 | 900 | | | | 7.50 |
| Wall | 20 | a b a | 7 | 200 | 2200 | | | | 18.20 |
| Wall | 20 | a b a | 7 | 200 | 2200 | | | | 18.20 |
| Wall | 12 | a | 5 | 1000 | | | | | 5.00 |
| Wall | 12 | a | 5 | 1000 | | | | | 5.00 |
| Top Slab | 12 | b a a | 5 | 200 | 2500 | | | | 14.50 |
| | 20 | a a b | 8 | 200 | 2500 | | | | 23.20 |
| | 12 | a | 5 | 1000 | | | | | 5.00 |
| | 12 | a | 5 | 1000 | | | | | 5.00 |
| | 20 | a b c b a | 5 | 400 | 425 | 1100 | | | 13.75 |
| Parapet Wall | 12 | e a b d c | 5 | 700 | 500 | 250 | 200 | 100 | 8.75 |
| | 12 | a | 6 | 1000 | | | | | 6.00 |

**Note:** No. of bars and total bar length Should be calculate as per required length

Note:

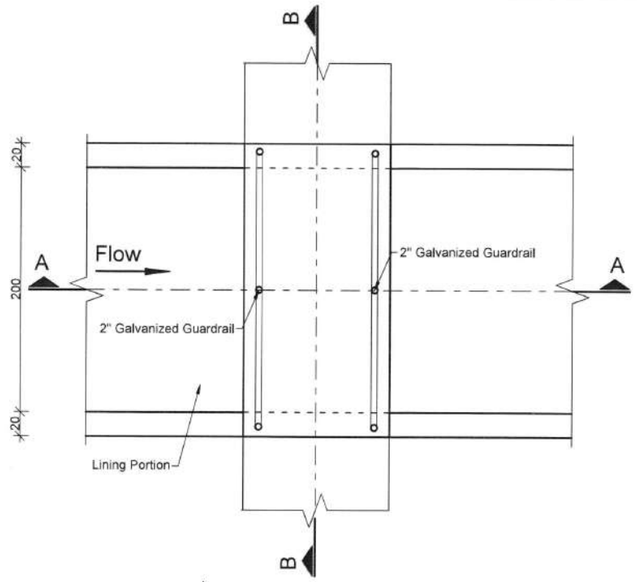
1. Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2. The construction joints are recommended after each segment of 10M length of R.C.C along the canal lining.
3. The joint's gape will be around (3.5 to 4)cm and should be filled properly as specified in technical specification.
4. Installation of PVC or HDPE water stoppers must be securely positioned in the forms to prevent deflection or misalignment during concrete placement. Type of water stopper shall be conform with ASTM D412 and ASTM D2240.
5. Excavation for the Foundation should be checked by the site Engineer as per drawing and Tech Specs.
6. Sand and Gravel should be clean and free from organic material.
7. All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification.
8. Fresh cement to be used.
9. Clean water should be used (suitable for drinking).
10. Angle of walls to be adjusted by SWIM engineer as per site conditions.
11. Compressive strength of plain cement concrete is 20MPa
12. Compressive strength of Reinforced cement concrete is 25MPa
13. Mild steel Grad 60 rebar to be used.

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

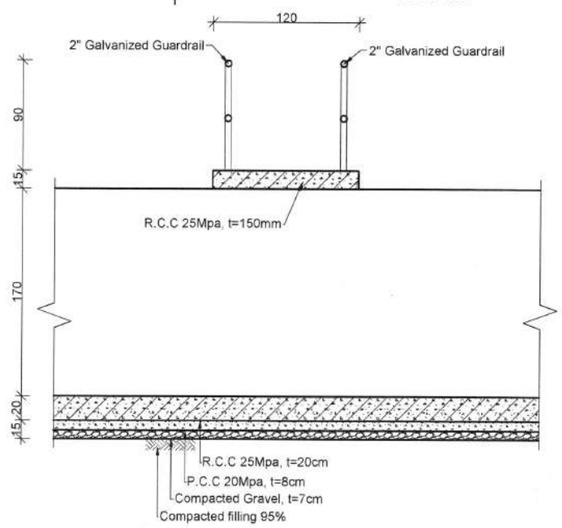
02 SEP 2019

Issued for construction

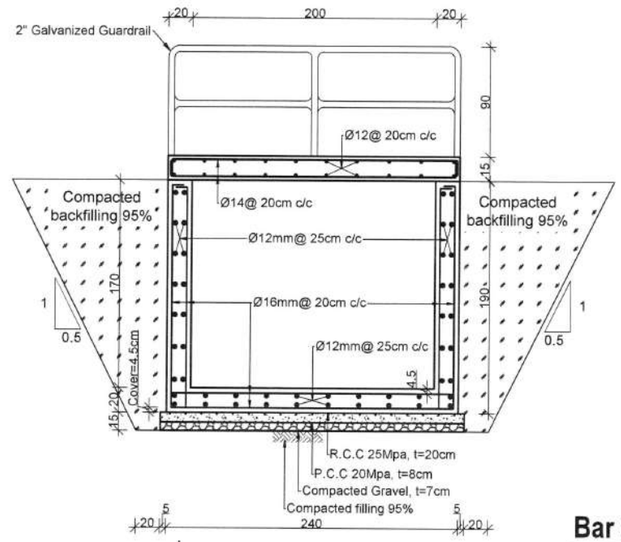
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW&RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | BOX CULVERT PLAN, SECTIONS & DETAIL ST: (6+295 & 7+085) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: 8 SEP 2019 | 38/49 |




Plan of Foot Culvert (Type-1)
REF. SCALE: 1:50



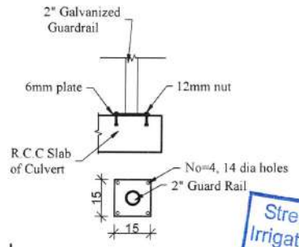

Section "A-A"
REF. SCALE: 1:50




Section "B-B"
REF. SCALE: 1:50

TABLE OF FOOT CULVERT

| No | Station | Description | Dimensions (M) | | | GPS Point | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | Length | High | Wide | North | East | |
| 1 | 5+400 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.11212 | 70.56275 | |
| 2 | 5+600 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.11120 | 70.56211 | |
| 3 | 5+800 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.10945 | 70.56165 | |
| 4 | 6+000 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.10762 | 70.56115 | |
| 5 | 6+200 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.10575 | 70.56050 | |
| 6 | 6+430 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.10533 | 70.55376 | |
| 7 | 6+790 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.10206 | 70.55310 | |
| 8 | 6+955 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.10205 | 70.55309 | |
| 9 | 7+215 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.09800 | 70.55642 | |
| 10 | 7+495 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.09730 | 70.55597 | |
| 11 | 7+680 | Foot Culvert | 2.4 | 1.70 | 1.20 | 37.09510 | 70.55336 | |




Detail of Guard Rail Bearing
REF. SCALE: 1:25

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction

02 SEP 2019

**Bar Schedule** (No. of bars and total bar length presented for 1m Foot Culvert)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) a | Segment length (mm) b | Total length - ***varies*** (metres) |
|---|---|---|---|---|---|---|
| Bot Slab | 16 | a a b | 5 | 110 | 2300 | 12.60 |
| Bot Slab | 16 | b a a | 5 | 110 | 2300 | 12.60 |
| Bot Slab | 12 | a | 4 | 1000 | | 4.00 |
| Bot Slab | 12 | | 4 | 1000 | | 4.00 |
| Wall | 16 | a b a | 5 | 110 | 1800 | 10.10 |
| Wall | 16 | a b a | 5 | 110 | 1800 | 10.10 |
| Wall | 12 | a | 4 | 1000 | | 4.00 |
| Wall | 12 | a | 4 | 1000 | | 4.00 |
| Top Slab | 14 | b a a | 5 | 100 | 2300 | 12.50 |
| | 14 | a a b | 5 | 100 | 2300 | 12.50 |
| | 12 | b a a | 5 | 100 | 1100 | 6.50 |
| | 12 | a a b | 5 | 100 | 1100 | 6.50 |

**Note:** No. of bars and total bar length Should be calculate as per required length

Note:

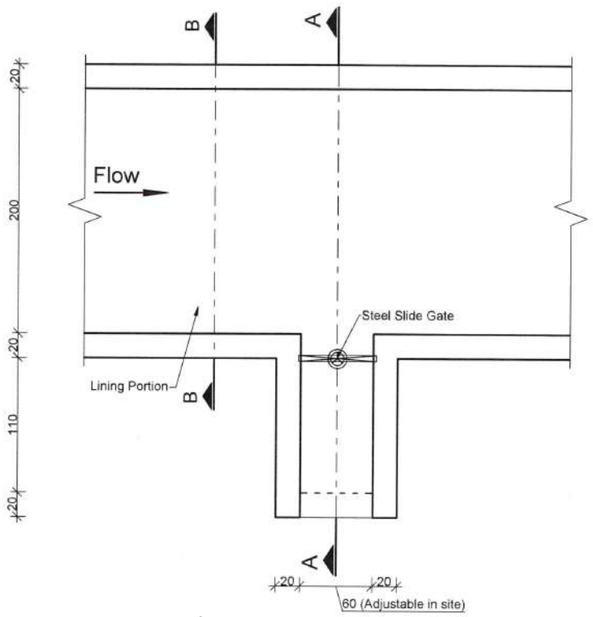
1. Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2. The construction joints are recommended after each segment of 10M length of R.C.C along the canal lining.
3. The joint's gape will be around (3.5 to 4)cm and should be filled properly as specified in technical specification.
4. Excavation for the Foundation should be checked by the site Engineer as per drawing and Tech Specs.
5. Sand and Gravel should be clean and free from organic material.
6. All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification.
7. Fresh cement to be used.
8. Clean water should be used (suitable for drinking).
9. Angle of walls to be adjusted by SWIM engineer as per site conditions.
10. Compressive strength of plain cement concrete is 20MPa
11. Compressive strength of Reinforced cement concrete is 25MPa
12. Mild steel Grad 60 rebar to be used.

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | FOOT CULVERT TYPE-1 Plan and Sections ST: (6+430, 6+790, 6+955, 7+215, 7+495, & 7+680) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE: 14 JUL 2019 | DATE: | 39/49 |

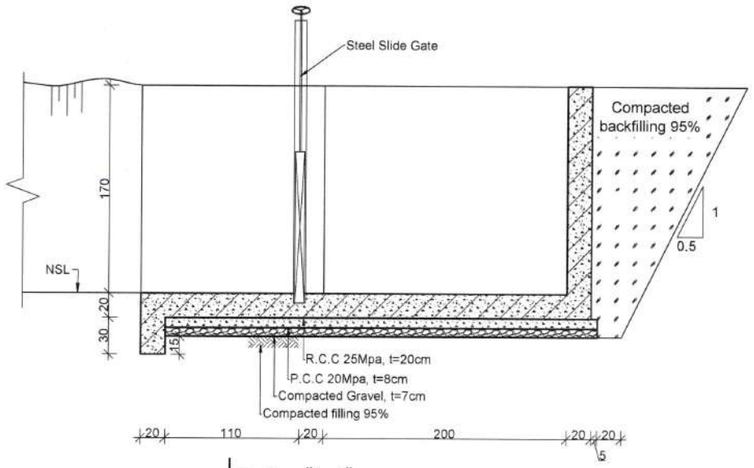
Ministry of Energy & Water

TABLE OF LINING

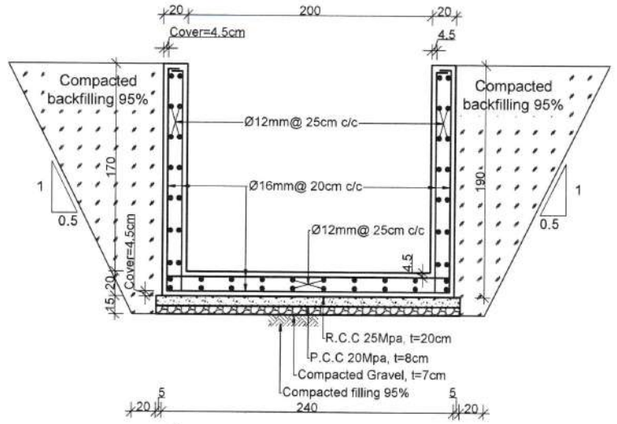
| No | Station | Description | Dimensions (M) | | | GPS Coordinate | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | Length | High | Wide | Northing | Easthing | |
| 1 | 6+305 | Turnout (Type-1) | 1.50 | 1.7 | 0.6 | 37.09730 | 70.55597 | |




Plan of Turnout (Type-1)
REF. SCALE: 1:50




Section "A-A"
REF. SCALE: 1:50




Section "B-B"
REF. SCALE: 1:50

## Bar Schedule (No. of bars and total bar length presented for 1m Lining)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) | | | | | Total length - ***varies*** (metres) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | a | b | c | d | e | |
| Slab | 16 | a b a | 5 | 110 | 2300 | | | | 12.60 |
| Slab | 16 | a b a | 5 | 110 | 2300 | | | | 12.60 |
| Slab | 12 | a | 4 | 1000 | | | | | 4.00 |
| Slab | 12 | | 4 | 1000 | | | | | 4.00 |
| Wall | 16 | a b a | 5 | 110 | 1800 | | | | 10.10 |
| Wall | 16 | a b a | 5 | 110 | 1800 | | | | 10.10 |
| Wall | 12 | a | 4 | 1000 | | | | | 4.00 |
| Wall | 12 | a | 4 | 1000 | | | | | 4.00 |

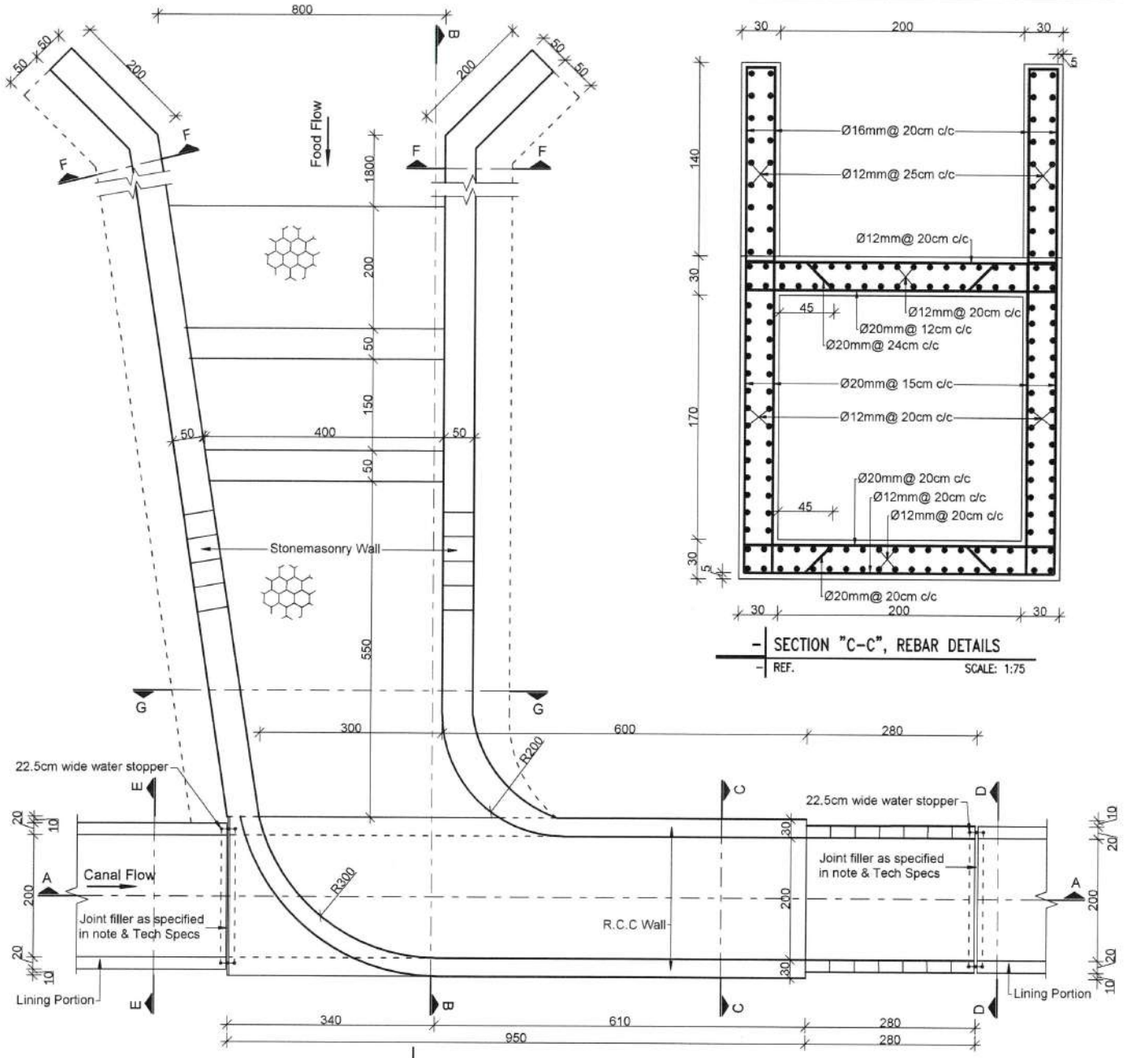
**Note:** No. of bars and total bar length Should be calculate as per required length

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction
02 SEP 2019

Note:
1. Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2. The construction joints are recommended after each segment of 10M length of R.C.C along the canal lining.
3. The joint's gape will be around (3.5 to 4)cm and should be filled properly as specified in technical specification.
4. Installation of PVC or HDPE water stoppers must be securely positioned in the forms to prevent deflection or misalignment during concrete placement. Type of water stopper shall be conform with ASTM D412 and ASTM D2240.
5. Excavation for the Foundation should be checked by the site Engineer as per drawing and Tech Specs.
6. Sand and Gravel should be clean and free from organic material.
7. All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification.
8. Fresh cement to be used.
9. Clean water should be used (suitable for drinking).
10. Angle of walls to be adjusted by SWIM engineer as per site conditions.
11. Compressive strength of plain cement concrete is 20MPa
12. Compressive strength of Reinforced cement concrete is 25MPa
13. Mild steel Grad 60 rebar to be used.

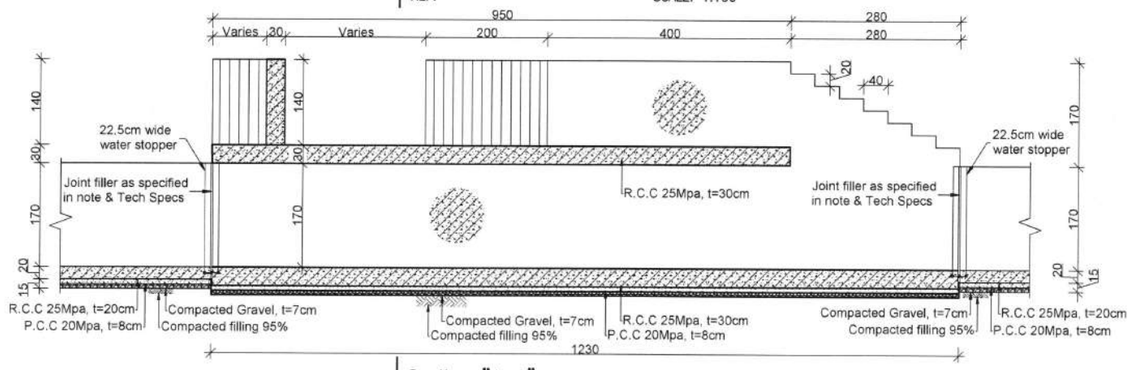
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | TURNOUT (TYPE-1) Plan and Sections ST: (6+305) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 40/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: SEP 2019 | |




Plan of Wash Inlet
REF. SCALE: 1:100




SECTION "C-C", REBAR DETAILS
REF. SCALE: 1:75




Section "A-A"
REF. SCALE: 1:100

Note:

1. Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2. The construction joints are recommended after each segment of 10M length of R.C.C along the canal lining.
3. The joint's gape will be around (3.5 to 4)cm and should be filled properly as specified in technical specification.
4. Installation of PVC or HDPE water stoppers must be securely positioned in the forms to prevent deflection or misalignment during concrete placement. Type of water stopper shall be conform with ASTM D412 and ASTM D2240.
5. Excavation for the Foundation should be checked by the site Engineer as per drawing and Tech Specs.
6. Sand and Gravel should be clean and free from organic material.
7. All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification.
8. Fresh cement to be used.
9. Clean water should be used (suitable for drinking).
10. Angle of walls to be adjusted by SWIM engineer as per site conditions.
11. Compressive strength of plain cement concrete is 20MPa
12. Compressive strength of Reinforced cement concrete is 25MPa
13. Mild steel Grad 60 rebar to be used.
14. Stone Masonry should be done by mortar (1:4)
15. Gravel: Material passing a 75-mm (3-inch) sieve and retained on a 4.75-mm (No.4) sieve.
16. Coarse Sand: Material passing a 4.75-mm sieve (No. 4) and retained on a 2.00-mm (No.10) sieve.
17. Fine Sand: Material passing a 0.475-mm (No. 40) sieve and retained on a 0.075-mm (No. 200) sieve.

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction
02 SEP 2019

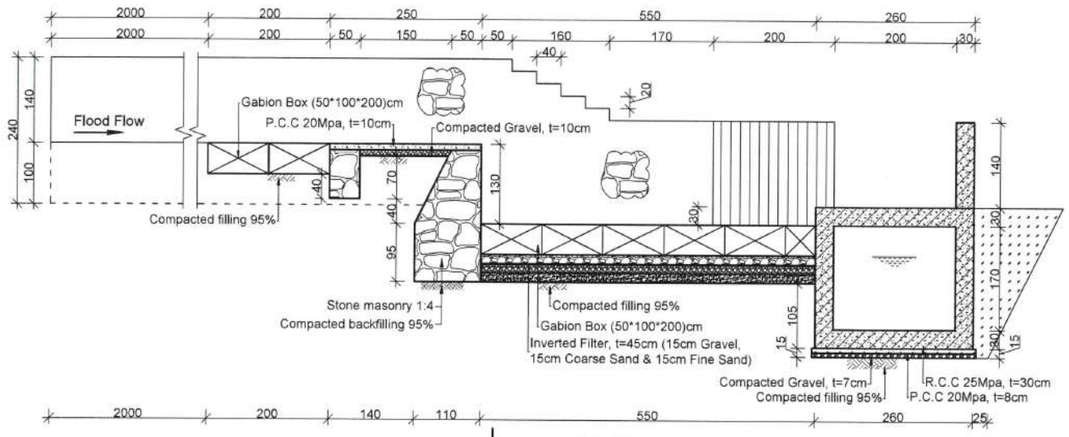
**Bar Schedule** (No. of bars and total bar length presented for 1m Wash Inlet)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) a | b | c | d | e | Total length - *varies* (metres) |
|---|---|---|---|---|---|---|---|---|---|
| Bot Slab | 12 | a b a | 5 | 200 | 2500 | | | | 14.50 |
| Bot Slab | 20 | a b a | 5 | 200 | 2500 | | | | 14.50 |
| Bot Slab | 12 | a | 5 | 1000 | | | | | 5.00 |
| Bot Slab | 12 | | 5 | 1000 | | | | | 5.00 |
| Bot Slab | 12 | a b c b a | 5 | 400 | 425 | 1100 | | | 13.75 |
| Wall | 20 | a b a | 7 | 200 | 2200 | | | | 18.20 |
| Wall | 20 | a b a | 7 | 200 | 2200 | | | | 18.20 |
| Wall | 12 | a | 5 | 1000 | | | | | 5.00 |
| Wall | 12 | a | 5 | 1000 | | | | | 5.00 |
| Top Slab | 12 | b a a | 5 | 200 | 2500 | | | | 14.50 |
| | 20 | a a b | 8 | 200 | 2500 | | | | 23.20 |
| | 12 | a | 5 | 1000 | | | | | 5.00 |
| | 12 | a | 5 | 1000 | | | | | 5.00 |
| | 20 | a b c b a | 5 | 400 | 425 | 1100 | | | 13.75 |
| Wash Inlet Wall | 16 | b a | 5 | 200 | 1300 | | | | 8.50 |
| | 16 | a b a | 5 | 200 | 1300 | | | | 8.50 |
| | 12 | a | 4 | 1000 | | | | | 4.00 |
| | 12 | a | 4 | 1000 | | | | | 4.00 |

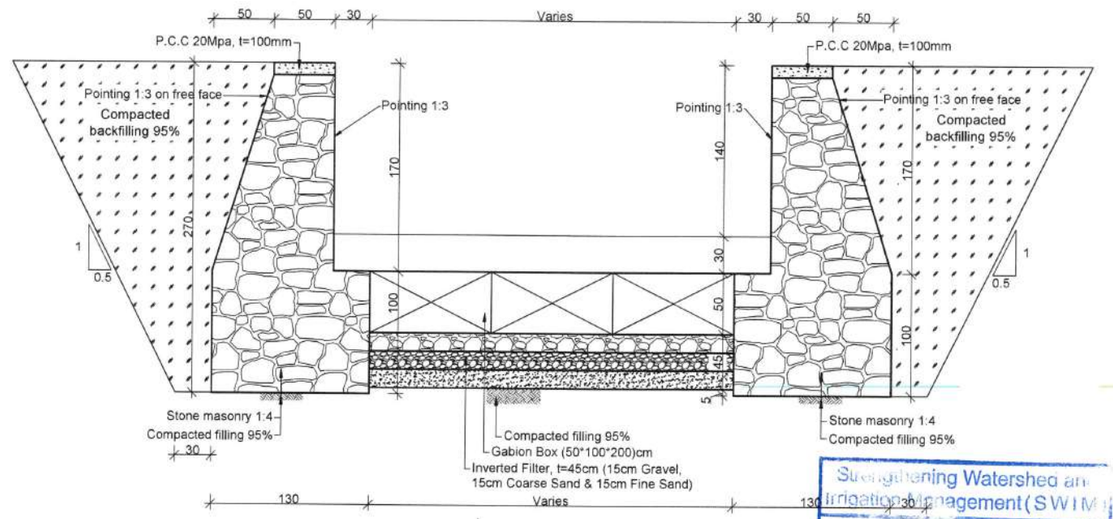
**Note:** No. of bars and total bar length Should be calculate as per required length

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | WASH INLET PLAN AND SECTIONS ST: 7+690 | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 41/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Ministry of ... General Directorate of ...
8 CB 2019

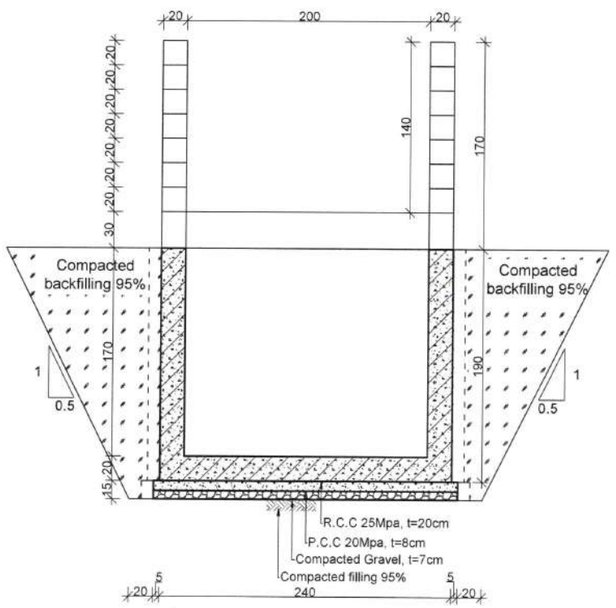



Section "B-B"
REF.
SCALE: 1:100

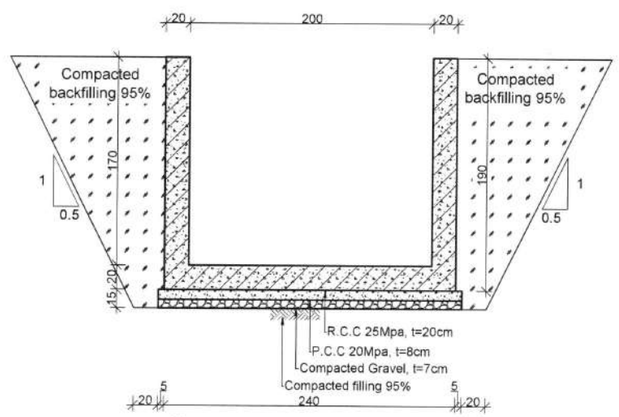



Section "G-G"
REF.
SCALE: 1:50

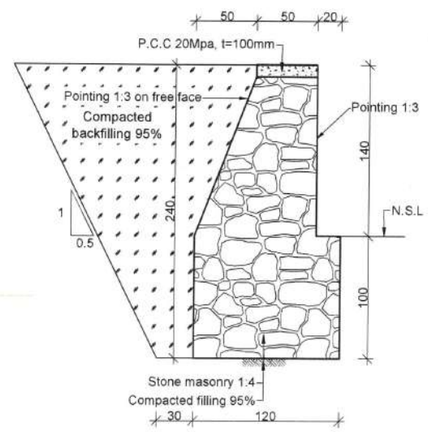
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for construction




Section "D-D"
REF.
SCALE: 1:50




Section "E-E"
REF.
SCALE: 1:50




Section "F-F"
REF.
SCALE: 1:50

SEP 2019

Ministry of Energy & Water

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA. APPROVAL | SHEET NO. 42/49 |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | WASH INLET SECTIONS ST: 7+690 | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Sep 2019

## TABLE OF DECK SLAB CULVERT

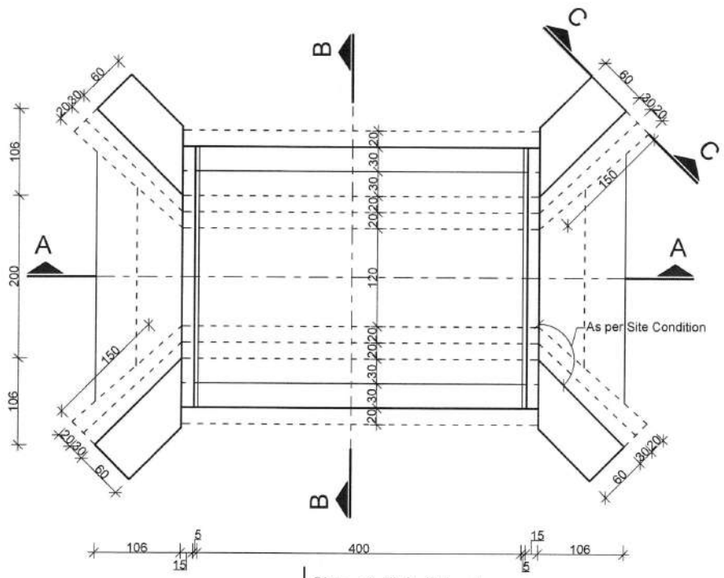
| No | Station | Culvert Detail | Dimensions (M) | | | GPS Coordinate | | Elevation | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | Length | Height | Width | North | East | m | |
| 1 | 10+420 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.09334 | 70.52394 | 1178.41 | |
| 2 | 10+570 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.09368 | 70.52315 | 1178.33 | |
| 3 | 10+930 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.09505 | 70.52014 | 1177.76 | |
| 4 | 11+445 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.09826 | 70.51660 | 1176.99 | |
| 5 | 12+410 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.10552 | 70.51165 | 1176.21 | |
| 6 | 13+500 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.11196 | 70.51436 | 1172.71 | |
| 7 | 13+770 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.11365 | 70.51542 | 1171.23 | |
| 8 | 14+820 | Deck Slab Culvert | 4.0 | 1.30 | 2.0 | 37.11876 | 70.51168 | 1166.34 | |

Issued for construction

Strengthening Watershed and Irrigation Management (SWIM)

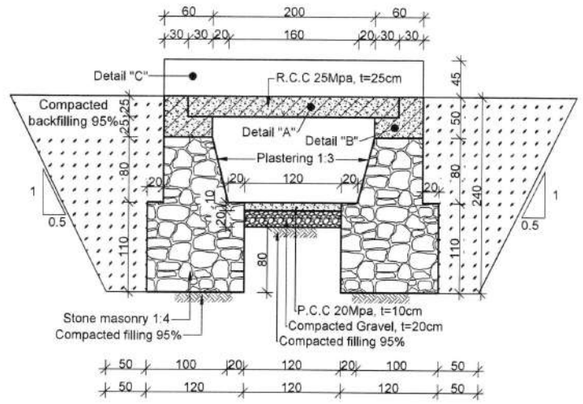
AECOM

02 SEP 2019



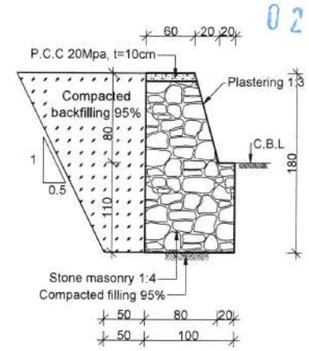

Plan of Slab Culvert

REF. SCALE: 1:75



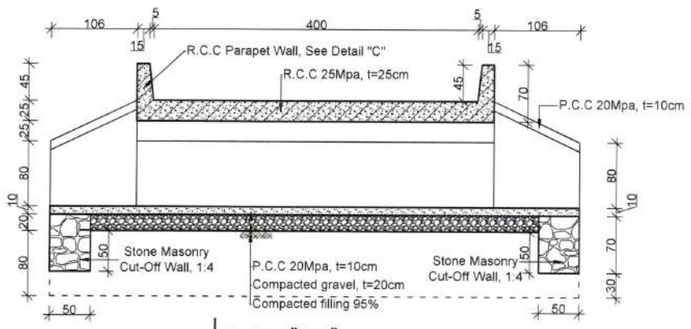

Section "B-B"

REF. SCALE: 1:75



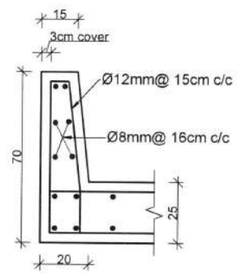

Section "C-C"

REF. SCALE: 1:75



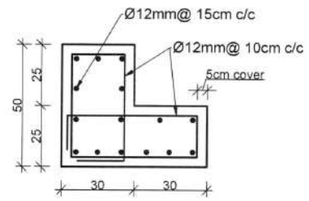

Section "A-A"

REF. SCALE: 1:75



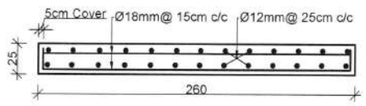

Detail "C"

REF. SCALE: 1:25




Detail "B"

REF. SCALE: 1:25




Detail "A"

REF. SCALE: 1:50

## Bar Schedule (No. of bars and total bar length presented for 1m culvert)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) | | | | | Total length - *varies* (metres) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | a | b | c | d | e | |
| Deck | 18 | a b a | 7 | 150 | 2500 | | | | 19.60 |
| Deck | 18 | a b a | 7 | 150 | 2500 | | | | 19.60 |
| Deck | 12 | a | 4 | 4300 | | | | | 17.20 |
| Deck | 12 | a | 4 | 4300 | | | | | 17.20 |
| Bearing Shelf | 12 | c b e d | 10 | | 420 | 240 | 400 | 216 | 14.92 |
| Bearing Shelf | 12 | d c e b | 10 | | 540 | 190 | 516 | 180 | 16.06 |
| Bearing Shelf | 12 | a | 13 | 1000 | | | | | 13.000 |
| Parapet Wall | 8 | a | 13 | 1000 | | | | | 13.000 |
| Parapet wall | 12 | e a b d c | 16 | 600 | 400 | 200 | 140 | 100 | 23.04 |

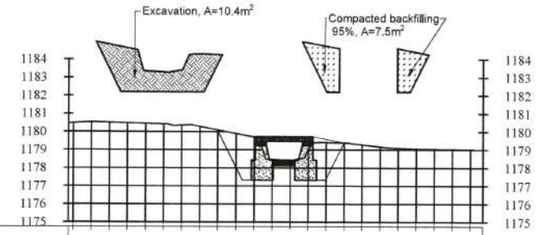
**Note:** No. of bars and total bar length Should be calculate as per required length

Note:
1: All dimension are in centimeter
2: Excavation for the Foundation should be checked by the site Engineer,
3: Sand and Gravel should be clean and free from organic material
4: Compressive strength of plain cement concrete is 20MPa
5: Compressive strength of Reinforced cement concrete is 25MPa
6: Mild steel Grad 60 rebar to be used.
7: All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification
8: Stone masonry should be done by Mortar (1:4)
9: Fresh cement to be used
10: Clean water should be used(suitable for drinking)
11: Angle and length of wing walls to be adjusted by SWIM engineer as per site conditions

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | DECK SLAB CULVERT PLAN, SECTIONS & DETAILS ST: (10+420, 10+570, 10+930, 11+445, 12+410, 13+500, 13+770, & 14+820) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE: | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE: | HORTENSIA VIDAUR ACTING CHIEF OF PARTY DATE: | DATE: | SHEET NO. 43/49 |

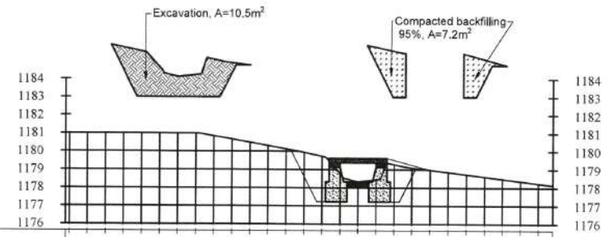
14 JUL 2019

SEP 2019



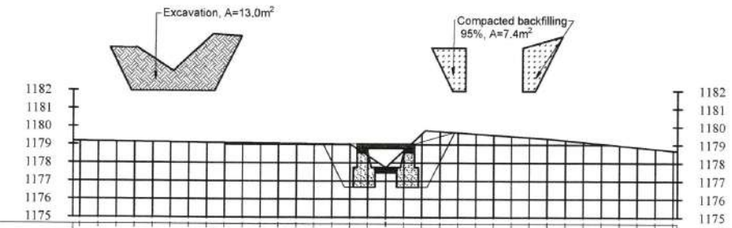

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -12.00 | 1180.49 |
| -11.00 | 1180.54 |
| -10.00 | 1180.67 |
| -9.00 | 1180.80 |
| -8.00 | 1180.94 |
| -7.00 | 1180.67 |
| -6.00 | 1180.86 |
| -5.00 | 1180.59 |
| -4.00 | 1180.30 |
| -3.00 | 1180.02 |
| -2.00 | 1179.73 |
| -1.00 | 1178.46 |
| 0 | 1178.41 |
| 1.00 | 1179.05 |
| 2.00 | 1179.31 |
| 3.00 | 1179.90 |
| 4.00 | 1179.45 |
| 5.00 | 1179.22 |
| 6.00 | 1179.28 |
| 7.00 | 1179.16 |
| 8.00 | 1179.09 |
| 9.00 | 1179.01 |
| 10.00 | 1177.93 |

Station: 10+420



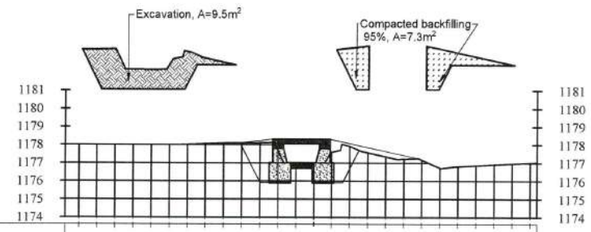

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -16.00 | |
| -15.00 | |
| -14.00 | |
| -13.00 | |
| -12.00 | |
| -11.00 | |
| -10.00 | |
| -9.00 | 1181.32 |
| -8.00 | 1181.13 |
| -7.00 | 1180.90 |
| -6.00 | 1180.66 |
| -5.00 | 1180.42 |
| -4.00 | 1180.18 |
| -3.00 | 1179.95 |
| -2.00 | 1179.74 |
| -1.00 | 1178.81 |
| 0 | 1178.33 |
| 1.00 | 1178.44 |
| 2.00 | 1179.28 |
| 3.00 | 1179.09 |
| 4.00 | 1178.97 |
| 5.00 | 1178.85 |
| 6.00 | 1178.72 |
| 7.00 | 1178.60 |
| 8.00 | 1178.48 |
| 9.00 | 1178.35 |
| 10.00 | 1178.23 |

Station: 10+570



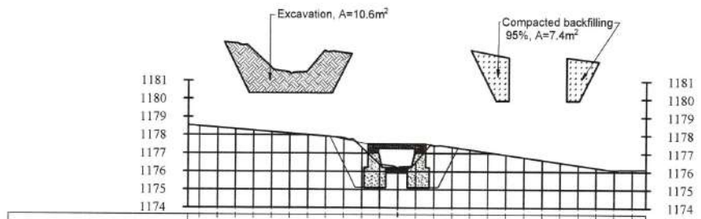

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -17.00 | 1179.05 |
| -16.00 | 1179.05 |
| -15.00 | 1179.05 |
| -14.00 | 1179.05 |
| -13.00 | 1179.05 |
| -12.00 | 1179.05 |
| -11.00 | 1179.05 |
| -10.00 | 1179.05 |
| -9.00 | 1179.05 |
| -8.00 | 1179.05 |
| -7.00 | 1179.05 |
| -6.00 | 1179.05 |
| -5.00 | 1179.05 |
| -4.00 | 1179.05 |
| -3.00 | 1179.05 |
| -2.00 | 1179.05 |
| -1.00 | 1178.41 |
| 0 | 1177.76 |
| 1.00 | 1178.68 |
| 2.00 | 1179.60 |
| 3.00 | 1179.74 |
| 4.00 | 1179.67 |
| 5.00 | 1179.61 |
| 6.00 | 1179.54 |
| 7.00 | 1179.47 |
| 8.00 | 1179.41 |
| 9.00 | 1179.34 |
| 10.00 | 1179.24 |
| 11.00 | 1179.15 |
| 12.00 | 1179.05 |
| 13.00 | 1178.96 |
| 14.00 | 1178.87 |
| 15.00 | 1178.77 |
| 16.00 | 1178.68 |

Station: 10+930



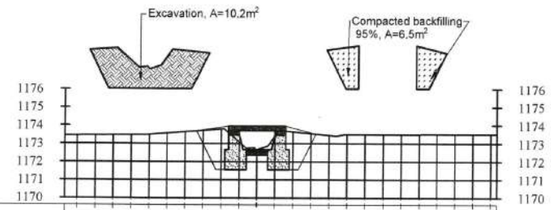

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -13.00 | |
| -12.00 | |
| -11.00 | |
| -10.00 | |
| -9.00 | |
| -8.00 | |
| -7.00 | 1178.02 |
| -6.00 | 1178.05 |
| -5.00 | 1178.09 |
| -4.00 | 1178.10 |
| -3.00 | 1178.11 |
| -2.00 | 1177.68 |
| -1.00 | 1176.99 |
| 0 | 1177.00 |
| 1.00 | 1177.59 |
| 2.00 | 1177.92 |
| 3.00 | 1177.57 |
| 4.00 | 1177.35 |
| 5.00 | 1177.22 |
| 6.00 | 1177.16 |
| 7.00 | 1176.73 |
| 8.00 | 1176.81 |
| 9.00 | 1176.86 |
| 10.00 | 1176.92 |
| 11.00 | 1176.97 |
| 12.00 | 1177.02 |

Station: 11+445



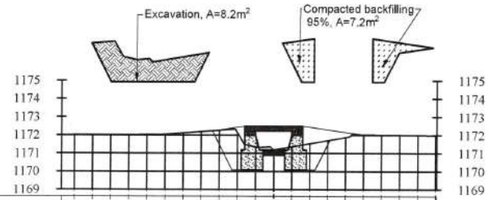

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -11.00 | 1178.49 |
| -10.00 | 1178.41 |
| -9.00 | 1178.33 |
| -8.00 | 1178.26 |
| -7.00 | 1178.18 |
| -6.00 | 1178.10 |
| -5.00 | 1178.02 |
| -4.00 | 1177.94 |
| -3.00 | 1177.86 |
| -2.00 | 1177.33 |
| -1.00 | 1176.40 |
| 0 | 1176.21 |
| 1.00 | 1176.53 |
| 2.00 | 1177.41 |
| 3.00 | 1177.34 |
| 4.00 | 1177.20 |
| 5.00 | 1177.05 |
| 6.00 | 1176.91 |
| 7.00 | 1176.77 |
| 8.00 | 1176.62 |
| 9.00 | 1176.48 |
| 10.00 | 1176.34 |
| 11.00 | 1176.20 |
| 12.00 | 1176.09 |
| 13.00 | 1176.10 |

Station: 12+410



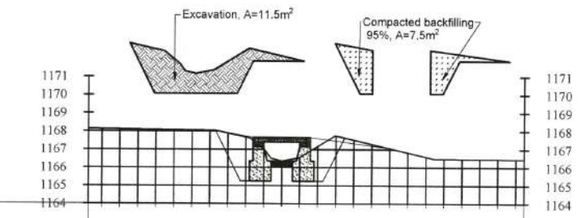

| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -10.00 | 1173.46 |
| -9.00 | 1173.47 |
| -8.00 | 1173.47 |
| -7.00 | 1173.48 |
| -6.00 | 1173.51 |
| -5.00 | 1173.58 |
| -4.00 | 1173.66 |
| -3.00 | 1173.73 |
| -2.00 | 1173.81 |
| -1.00 | 1173.08 |
| 0 | 1172.71 |
| 1.00 | 1173.41 |
| 2.00 | 1173.65 |
| 3.00 | 1173.56 |
| 4.00 | 1173.46 |
| 5.00 | 1173.50 |
| 6.00 | 1173.50 |
| 7.00 | 1173.51 |
| 8.00 | 1173.51 |
| 9.00 | 1173.51 |
| 10.00 | 1173.51 |
| 11.00 | 1173.52 |
| 12.00 | 1173.52 |
| 13.00 | 1173.52 |

Station: 13+500




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -11.00 | 1172.00 |
| -10.00 | 1172.01 |
| -9.00 | 1172.01 |
| -8.00 | 1172.01 |
| -7.00 | 1172.02 |
| -6.00 | 1172.03 |
| -5.00 | 1172.11 |
| -4.00 | 1172.19 |
| -3.00 | 1172.26 |
| -2.00 | 1172.13 |
| -1.00 | 1171.34 |
| 0 | 1171.23 |
| 1.00 | 1171.36 |
| 2.00 | 1171.53 |
| 3.00 | 1171.70 |
| 4.00 | 1171.87 |
| 5.00 | 1172.02 |
| 6.00 | 1172.01 |
| 7.00 | 1172.00 |
| 8.00 | 1171.99 |
| 9.00 | 1171.98 |

Station: 13+770




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -10.00 | 1168.11 |
| -9.00 | 1168.10 |
| -8.00 | 1168.09 |
| -7.00 | 1168.08 |
| -6.00 | 1168.06 |
| -5.00 | 1168.05 |
| -4.00 | 1168.04 |
| -3.00 | 1167.88 |
| -2.00 | 1167.67 |
| -1.00 | 1166.99 |
| 0 | 1166.34 |
| 1.00 | 1166.57 |
| 2.00 | 1167.17 |
| 3.00 | 1167.74 |
| 4.00 | 1167.51 |
| 5.00 | 1167.28 |
| 6.00 | 1167.05 |
| 7.00 | 1166.82 |
| 8.00 | 1166.59 |
| 9.00 | 1166.48 |
| 10.00 | 1166.47 |
| 11.00 | 1166.47 |
| 12.00 | 1166.46 |
| 13.00 | 1166.46 |

Station: 14+820

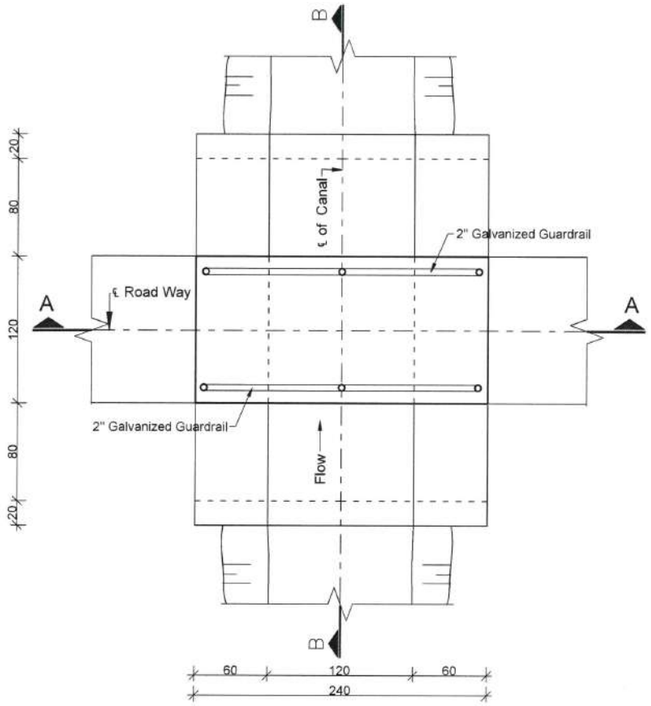
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for construction
02 SEP 2019

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | QUSHPARA MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | SLAB CULVERT SURVEY SECTIONS | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 44/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: SEP 2019 | |

TABLE OF FOOT CULVERT

| No | Station | Description | Dimensions (M) | | | GPS Point | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | Length | High | Wide | North | East | |
| 7 | 13+030 | Foot Culvert | 2.4 | 1.10 | 1.20 | 37.11080 | 70.50914 | |
| 8 | 13+255 | Foot Culvert | 2.4 | 1.10 | 1.20 | 37.11127 | 70.51115 | |

Strengthening Watershed and Irrigation Management (SWIM)
Issued for construction
AECOM
02 SEP 2019

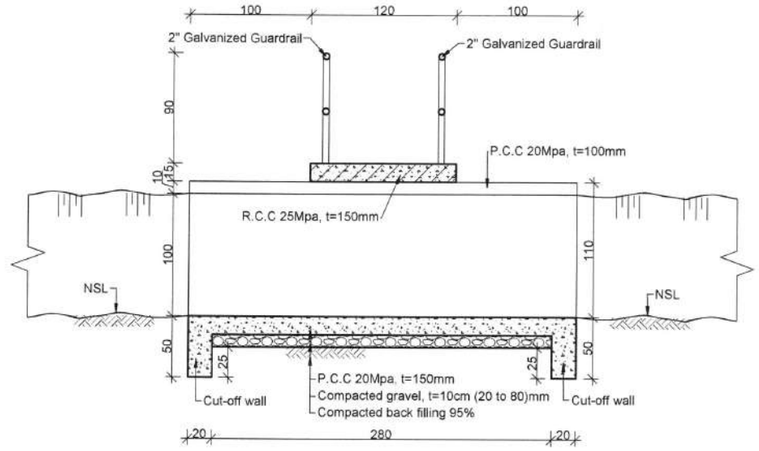



Plan of Foot Culvert
REF. SCALE: 1:50

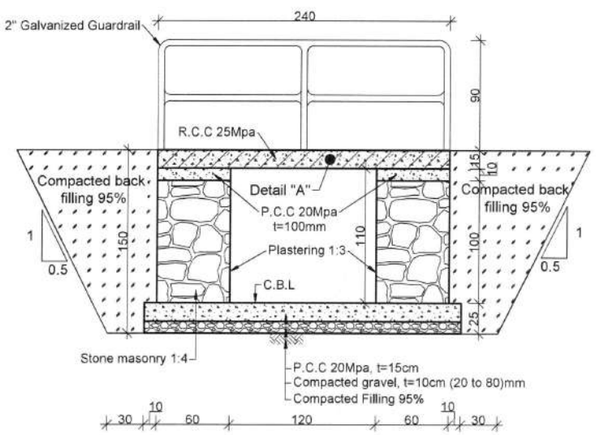
**Bar Schedule** (No. of bars and total bar length presented is for 1m Foot Culvert)

| Member | Bar Diameter | Shape Code | No. of Bars | Segment length (mm) a | Segment length (mm) b | Total length - ***varies*** (metres) |
|---|---|---|---|---|---|---|
| Slab | 14 | b, a, a | 5 | 100 | 2300 | 12.50 |
| | 14 | a, a, b | 5 | 100 | 2300 | 12.50 |
| | 12 | b, a, a | 5 | 100 | 1100 | 6.50 |
| | 12 | a, a, b | 5 | 100 | 1100 | 6.50 |

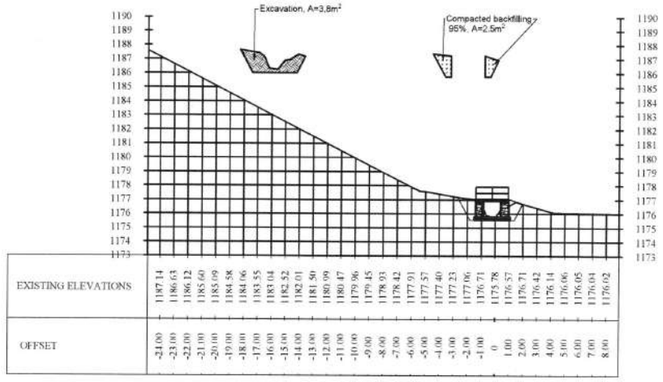
**Note:** No. of bars and total bar length Should be calculate as per required length



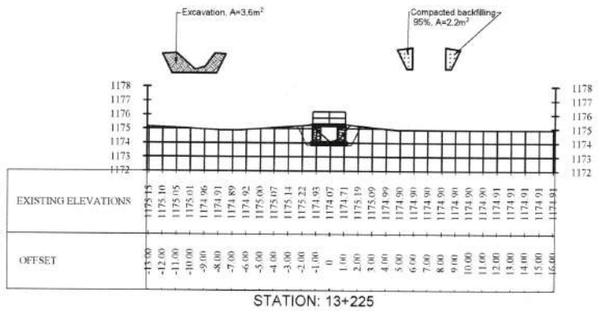

Section "B-B"
REF. SCALE: 1:50



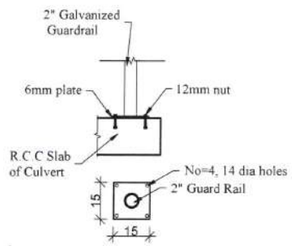

Section "A-A"
REF. SCALE: 1:50



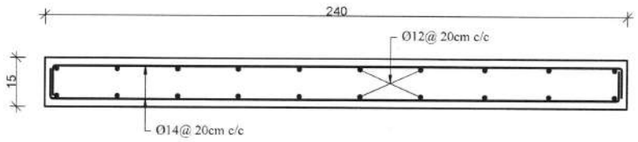

STATION: 13+030




STATION: 13+225




Detail of Guard Rail Bearing
REF. SCALE: 1:25




Detail "A"
REF. SCALE: 1:25

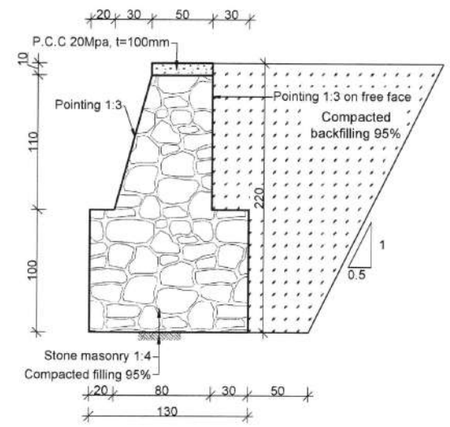
Note:
1: Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2: Excavation for the Foundation should be checked by the site Engineer,
3: Sand and Gravel should be clean and free from organic material
4: All filling should be compacted properly in layers of 15cm each as specified in Tech Specs
5: Stone masonry should be done by Mortar (1:4)
6: Mild steel Grad 60 rebar to be used.
8: Fresh cement to be used
9: Clean water should be used (suitable for drinking)
10: Angle and length of wing walls to be adjusted by SWIM engineer as per site conditions

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | FOOT CULVERT PLAN, SECTIONS & DETAILS ST: (13+030 & 13+255) | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 45/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: | |

Ministry of Energy & Water
Exp 2019

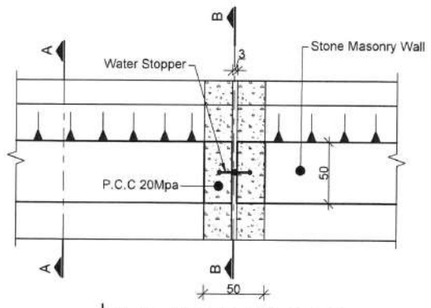
TABLE OF RETAINING WALL

| No | Station | Retaining Walls Detail | Dimensions (M) | | | GPS Coordinate | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | Length | Height | Width | North | East | |
| 1 | 13+000 | Retaining Wall | 50 | 2.2 | 1.3 | 37.11089 | 70.50926 | |




Section (A-A)Retaining Wall, ST: 13+000, L=50m

REF. SCALE: 1:50




Retaining Wall Joint Detail, Each 15m

REF. SCALE: 1:50

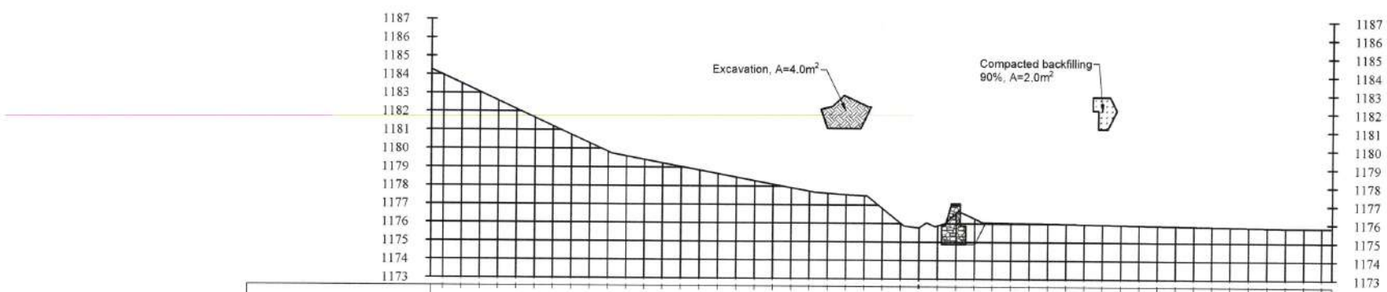
Note:

1. Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2. Excavation for the Foundation should be checked by the site Engineer.
3. Sand and Gravel should be clean and free from organic material
4. All filling should be compacted properly in layers of 15cm each as specified in technical specification
5. Stone masonry should be done by mortar (1:4).

Strengthening Watershed and Irrigation Management (SWIM)
AECOM

Issued for construction

02 SEP 2019




| OFFSET | EXISTING ELEVATIONS |
|---|---|
| -26.00 | 1183.96 |
| -25.00 | 1183.50 |
| -24.00 | 1183.04 |
| -23.00 | 1182.58 |
| -22.00 | 1182.13 |
| -21.00 | 1181.67 |
| -20.00 | 1181.21 |
| -19.00 | 1180.75 |
| -18.00 | 1180.29 |
| -17.00 | 1179.84 |
| -16.00 | 1179.60 |
| -15.00 | 1179.41 |
| -14.00 | 1179.23 |
| -13.00 | 1179.04 |
| -12.00 | 1178.85 |
| -11.00 | 1178.66 |
| -10.00 | 1178.48 |
| -9.00 | 1178.29 |
| -8.00 | 1178.10 |
| -7.00 | 1177.92 |
| -6.00 | 1177.73 |
| -5.00 | 1177.62 |
| -4.00 | 1177.55 |
| -3.00 | 1177.49 |
| -2.00 | 1176.80 |
| -1.00 | 1176.02 |
| 0 | 1175.77 |
| 1.00 | 1175.89 |
| 2.00 | 1176.56 |
| 3.00 | 1176.28 |
| 4.00 | 1176.06 |
| 5.00 | 1176.04 |
| 6.00 | 1176.03 |
| 7.00 | 1176.01 |
| 8.00 | 1175.99 |
| 9.00 | 1175.98 |
| 10.00 | 1175.96 |
| 11.00 | 1175.95 |
| 12.00 | 1175.93 |
| 13.00 | 1175.92 |
| 14.00 | 1175.90 |
| 15.00 | 1175.88 |
| 16.00 | 1175.87 |
| 17.00 | 1175.85 |
| 18.00 | 1175.84 |
| 19.00 | 1175.82 |
| 20.00 | 1175.81 |
| 21.00 | 1175.80 |
| 22.00 | 1175.80 |

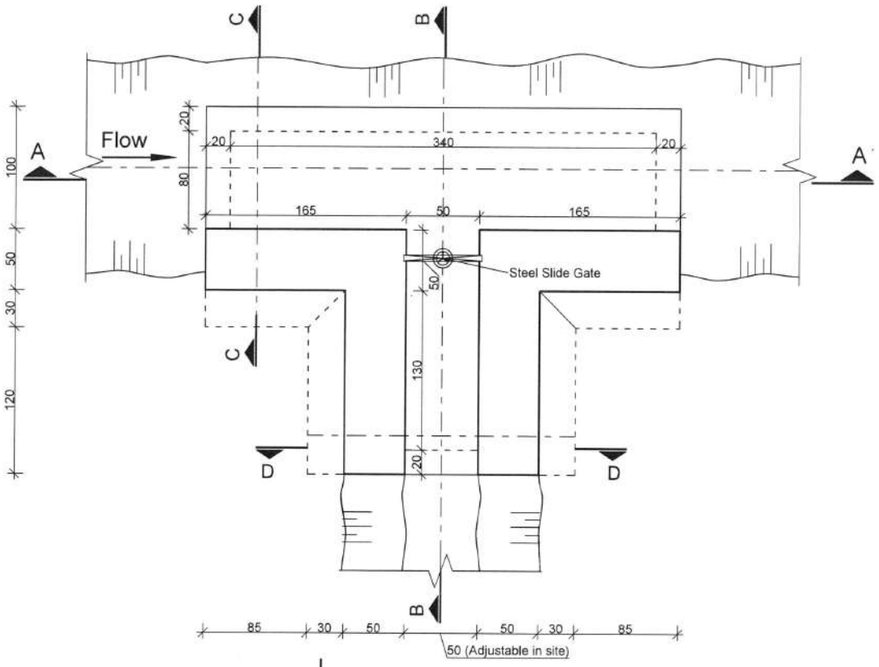
Station: 13+000 to 13+050

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SWIM | BATASH MIAN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | RETAINING WALL SECTIONS | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | SHEET NO. 46/49 |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: Sep 2019 | |

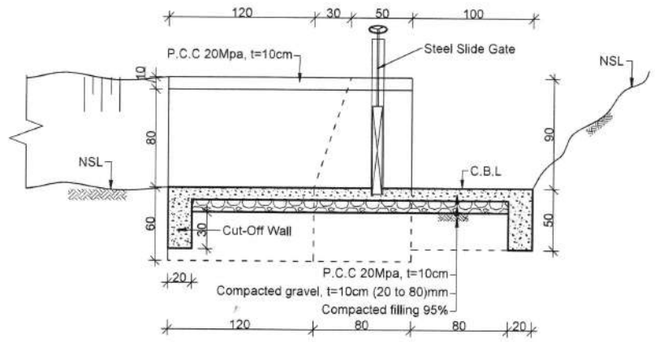
Ministry of Energy & Water

Note:

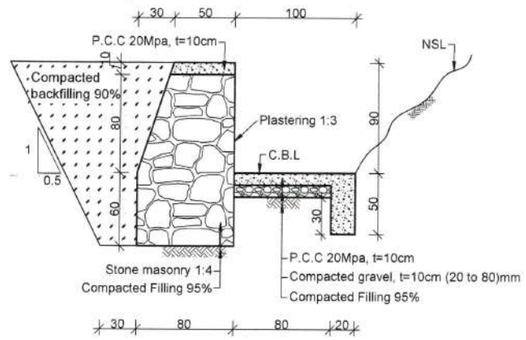
1: Unless noted otherwise, linear dimensions shown on drawing are in centimeters (cm), and elevations are in meters (m).
2: Excavation for the Foundation should be checked by the site Engineer,
3: Sand and Gravel should be clean and free from organic material
4: All filling should be compacted properly in layers of 15cm each as specified in drawing and technical specification
5: Stone masonry should be done by Mortar (1:4)
6: Angle and length of wing walls to be adjusted by SWIM engineer as per site conditions



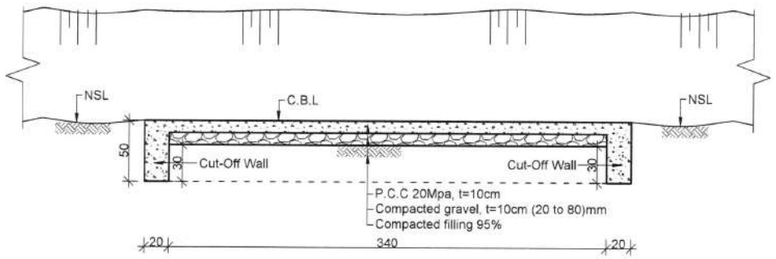

Plan of Turnout in Unlined Canal
REF. SCALE: 1:50



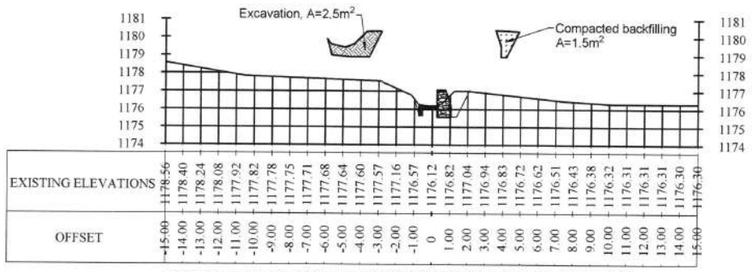

Section "B-B"
REF. SCALE: 1:50



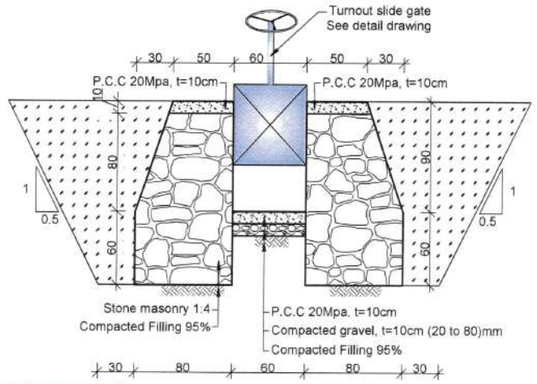

Section "C-C"
REF. SCALE: 1:50




Section "A-A"
REF. SCALE: 1:50




BATASH MAIN CANAL AVERAGE CUTTING AND FILLING FOR TURNOUT STRUCTURES IN UNLINED PORTION

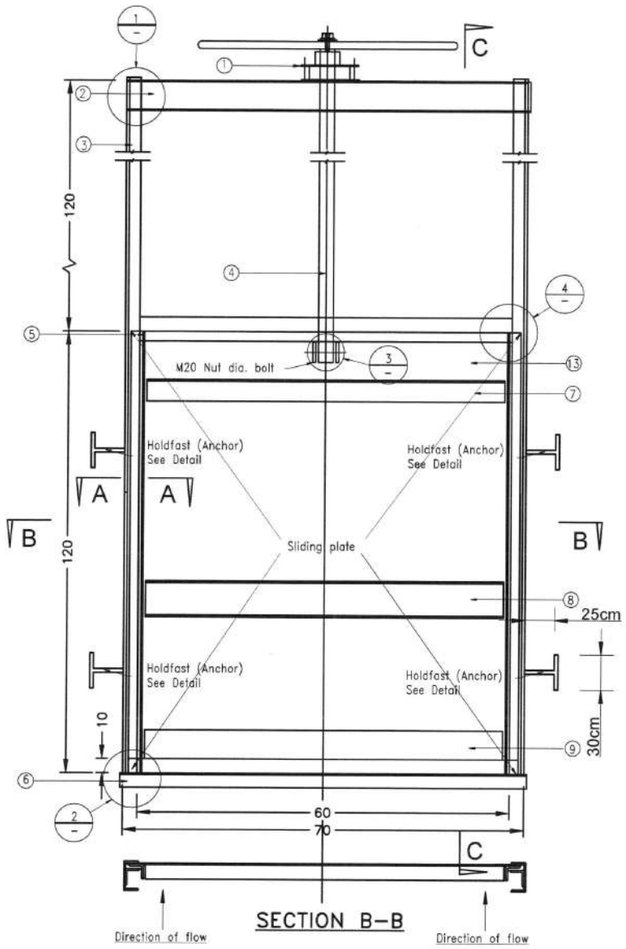



Section "D-D"
REF. SCALE: 1:50

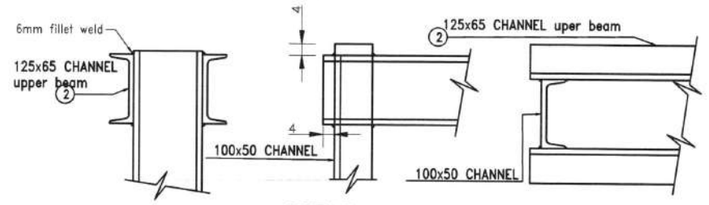
Strengthening Watershed and Irrigation Management (SWIM)
AECOM
Issued for construction
02 SEP 2019

| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MAIL/DAIL APPROVAL | SHEET NO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | TURNOUT IN EARTHEN CANAL PLAN AND SECTIONS | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | 47/49 |
| | | | | | | DATE | DATE | DATE 14 JUL 2019 | DATE Sep 2019 | |

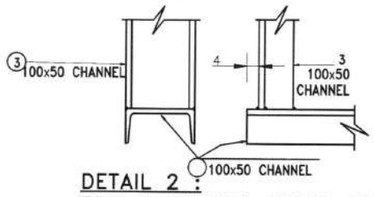
# Steel Slide Gate Detail For Proposed Turnout (Type-1)
## Size (120*60)cm



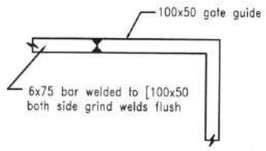

SECTION B–B



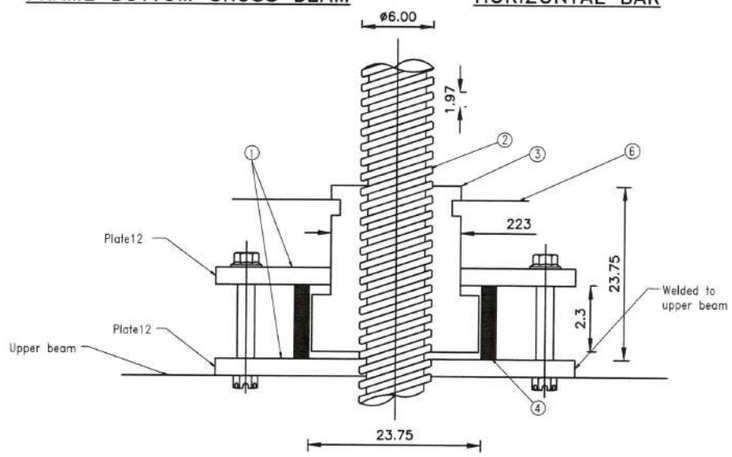

DETAIL 1:
FRAME CROSS BEAM(TOP)

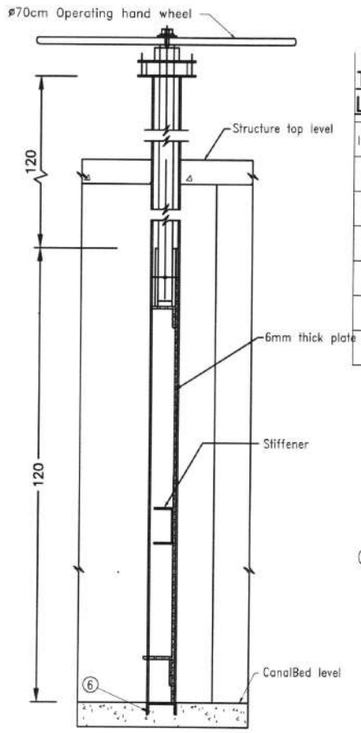



DETAIL 2 :
FRAME BOTTOM CROSS BEAM




DETAIL 4:
HORIZONTAL BAR

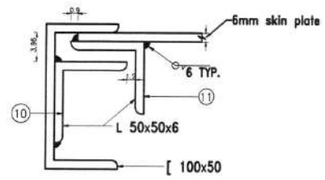



SECTION C–C

### TABLE (2)
### LIFTING COMPONENT

| Item | Description |
|---|---|
| 1 | Upper&lower plate 250x250x12mm |
| 2 | Spindle |
| 3 | Bearing nut |
| 4 | Spacer |
| 5 | Four M12 bolts , nuts |
| 6 | ø700mm handle |




SECTION A–A

Issued for construction

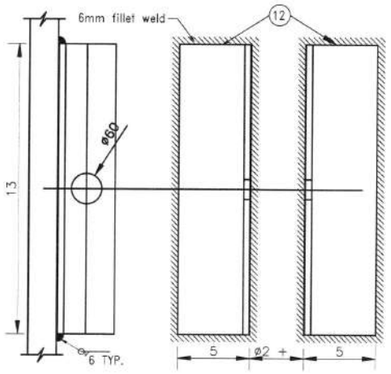
### TABLE(1)
### GATE COMPONENT

| Item | Description |
|---|---|
| 1 | Thrust bearing/nut assembly |
| 2 | [125 x 65 Channel Upper beam |
| 3 | [100 x 50 Channel |
| 4 | Spindle ø 60mm |
| 5 | 6 x 75 bar |
| 6 | [100 x 50 Channel (Lower beam ) |
| 7 | Stiffener L 75x75x6 |
| 8 | Stiffener [ 100x65 |
| 9 | Stiffener L 100x100x6 |
| 10 | L 50x 50x 6aNSLe |
| 11 | L 50x 50x 6aNSLe |
| 12 | L 50 X 50 X 6 lifting brackets |
| 13 | Plate 6 mm (see notes) |

Strengthening Watershed and Irrigation Management (SWIM)
AECOM
02 SEP 2019

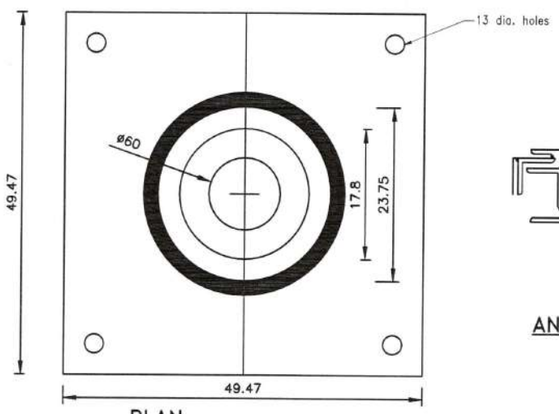
**NOTE:**

1. Three coats of enamel paint (one coat of red–oxide+ two coat of enamel paint).
2. Operation of the gates to be done by Mirab as per their scheduling.
3. Steel doors should be placed in a dry place to prevent from the oxidization before placement and installation.

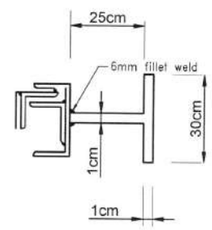



SECTION ELEVATION

DETAIL 3:
LIFTING BRACKETS




PLAN
THRUST BEARING

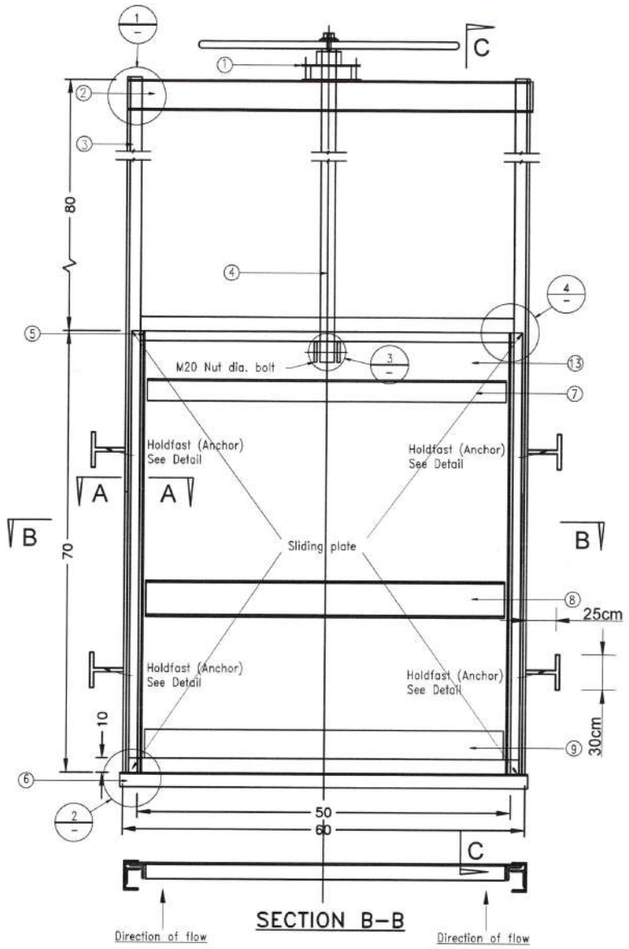



ANCHOR DETAIL

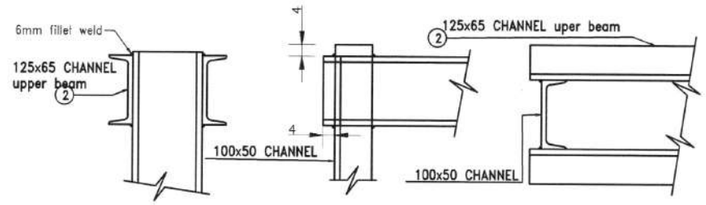
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT SWIM | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | SHEET NO. 48/49 |
| | | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | STEEL SLIDE GATE FOR TURNOUT TYPE - 1 | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR | HORTENSIA VIDAURI ACTING CHIEF OF PARTY | | |
| | | | | | | DATE: | DATE: | DATE: 14 JUL 2019 | DATE: Directorate of Panj-Amu River Basin | |

وزارت انرژی و آب
Ministry of Energy & Water
Sep 2019

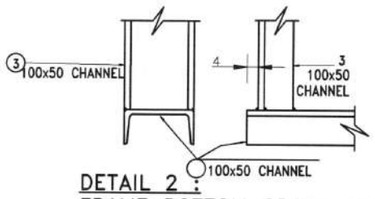
# Steel Slide Gate Detail For Turnout (Type-2)
## Size (60*70)cm



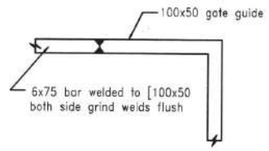

SECTION B–B



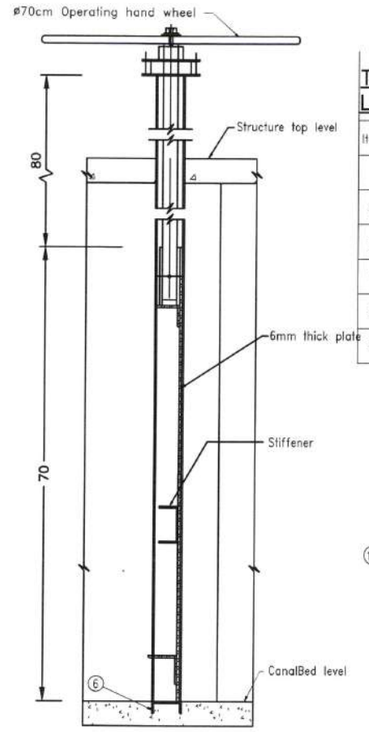

DETAIL 1:
FRAME CROSS BEAM(TOP)




DETAIL 2 :
FRAME BOTTOM CROSS BEAM



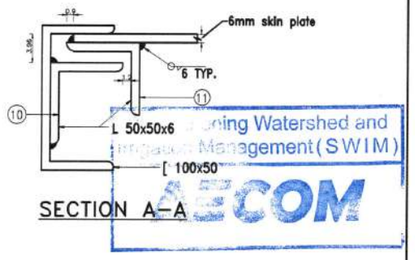

DETAIL 4:
HORIZONTAL BAR




SECTION C–C

## TABLE (2)
## LIFTING COMPONENT

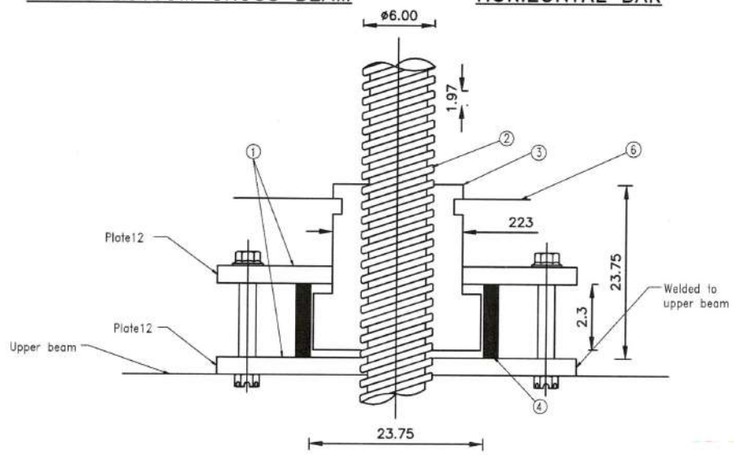
| Item | Description |
|---|---|
| 1 | Upper&lower plate 250x250x12mm |
| 2 | Spindle |
| 3 | Bearing nut |
| 4 | Spacer |
| 5 | Four M12 bolts , nuts |
| 6 | ø700mm handle |

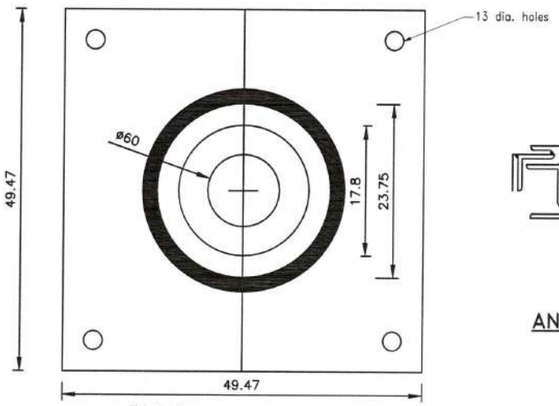



SECTION A–A

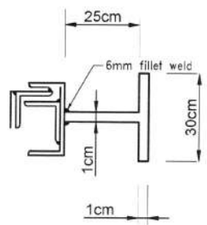
Strengthening Watershed and Irrigation Management(SWIM)
AECOM

Issued for construction
02 SEP 2017




PLAN
THRUST BEARING



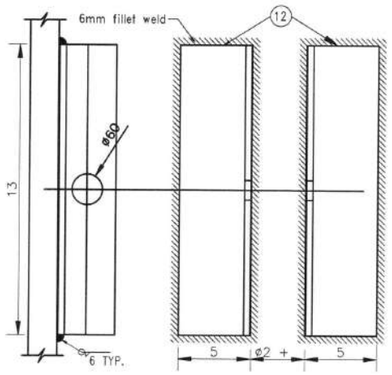

ANCHOR DETAIL

## TABLE(1)
## GATE COMPONENT

| Item | Description |
|---|---|
| 1 | Thrust bearing/nut cssembly |
| 2 | [125 x 65 Channel Upper beam |
| 3 | [100 x 50 Channel |
| 4 | Spindle ø 60mm |
| 5 | 6 x 75 bar |
| 6 | [100 x 50 Channel (Lower beam ) |
| 7 | Stiffener L 75x75x6 |
| 8 | Stiffener [ 100x65 |
| 9 | Stiffener L 100x100x6 |
| 10 | L 50x 50x 6aNSLe |
| 11 | L 50x 50x 6aNSLe |
| 12 | L 50 X 50 X 6 lifting brackets |
| 13 | Plate 6 mm (see notes) |

NOTE:

1.Three coats of enamel paint (one coat of red–oxide+ two coat of enamel paint).
2. Operation of the gates to be done by Mirab as per their scheduling.
3. Steel doors should be placed in a dry place to prevent from the oxidization before placement and installation.




SECTION ELEVATION

DETAIL 3:
LIFTING BRACKETS

| | STRENGTHENING WATERSHED & IRRIGATION MANAGEMENT | CANAL NAME | LOCATION | DRAWING TITLE | SURVEYED BY | DRAWING AND DESIGN BY | REVIEWED AND CHECKED BY | SWIM APPROVAL | MEW/RBA APPROVAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| USAID FROM THE AMERICAN PEOPLE | SWIM | BATASH MAIN CANAL | DISTRICT: CENTER PROVINCE: BADAKHSHAN | STEEL SLIDE GATE FOR TURNOUTS TYPE - 2 | SWIM | SAYED ROHULLAH ATAYI ENGINEER (HYDRAULIC SPECIALIST) DATE | ENG. MOHAMMAD MOBIN OMID QA/QC & ENVIRONMENTAL COMPLIANCE DIRECTOR DATE | HORTENSIA VIDAURI ACTING CHIEF OF PARTY DATE | DATE | SHEET NO. 49/49 |

14 JUL 2019
Sep 2019