
Boardwalk Replacement Project

Project No. 2983

SPECIFICATION TITLE SHEET

Section 00 00 00

Page 1

October 1, 2020

PROJECT TITLE: Vaseux-Bighorn National Wildlife Area
Boardwalk Replacement Project

PROJECT NUMBER:2983

DATED: Issued for Tender, October 1, 2020

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1.0 GENERAL

The drawings listed below will be included in the General Contractor/ Owner agreement and will become part of the contract.

Drawing No.	Drawing Title	Date
S1.0	Cover Page and General Arrangement	<i>September 29, 2020</i>
S2.0	General Notes	<i>September 29, 2020</i>
S3.0	Sections	<i>September 29, 2020</i>

END OF SECTION

Part 1 General

1.1 DESCRIPTION OF WORK

- .1 The Work includes, but is not necessarily limited to the following:
 - .1 Mobilization
 - .2 Protection of the natural environment.
 - .3 Surveying to confirm alignment
 - .4 Removal of existing boardwalk. Viewing structure to remain.
 - .5 Supply and installation of piling, including geotechnical services and test piles.
 - .6 Supply and installation of timber walkway including all labour and materials.
 - .7 Clean up and demobilization.

1.2 WORK SEQUENCE

- .1 The Work areas will be available as of 0800h, on December 1, 2020. Contractor to confirm start date. Work to be substantially complete prior to March 31, 2021.
- .2 The Boardwalk will be closed for the duration of the contract. Access to areas outside of the designated work areas must be maintained in accordance with phasing requirements.
- .3 Time and all time limits stated within the Bid submittal and Contract Documents are of the essence of the Contract. Contractor shall perform work expeditiously with adequate forces to complete the Contract Work within the time specified.

1.3 SCHEDULE

- .1 In conjunction with and in a form acceptable to the Departmental Representative, provide within five (5) working days after contract award, a schedule indicating the phasing and procedures required to complete the Work within the submitted timeframe.
- .2 The construction schedule shall reflect completion of all work under the Contract within the specified time and in accordance with these specifications.
- .3 The Contractor shall submit a revised schedule to the Departmental Representative if, after commencing the Work, the schedule fails to reflect actual progress or the Contractor wishes to make a major change to their approach. The revised construction schedule must be submitted in advance of beginning a revised approach.

1.4 CONTRACTOR'S USE OF SITE

- .1 The use of all equipment is to be restricted in accordance with noise by-laws. Contractor has access to the work areas with quiet work proceeding around the clock if desired.
- .2 Noise or dust generating work is to be performed between 8:00 a.m. and 5:00 p.m., Monday to Friday. Work outside of these hours must be approved by the Departmental Representative
- .3 The Contractor has 24-hour access to site; however, the use of the premises may be restricted due to user occupancy. Contractor to coordinate work hours with the Departmental Representative.
- .4 Do not unreasonably encumber the Place of Work with materials or equipment. Construction related debris shall not be permitted to accumulate on site where visible to building users. Remove daily if necessary.
- .5 Do not overload the structure.
- .6 Do not close or obstruct or store materials in roadways, sidewalks or passageways without prior approval from the Departmental Representative. Do not interfere with safe passage to and from the building and adjacent public sidewalks and roads. Move stored products or equipment that interferes with building operations.
- .7 Take all precautions and provide all required protection to ensure the safety of the general public.
- .8 No storage of materials or equipment is allowed outside the designated work areas without the Departmental Representative's approval.
- .9 During transportation of materials or equipment through occupied areas, ensure the public, property, and finishes are protected from damage. All damage caused by the Contractor is to be repaired or rectified at the Contractor's expense.
- .10 Maintain work areas and the vicinity clean and tidy to the satisfaction of the Departmental Representative.
- .11 Execute work with least possible interference or disturbance to normal use of premises.
- .12 Use temporary fencing to restrict public access while work is in progress.
- .13 Contractor to provide own power and potable water. There is no power available on-site. Potable water is not available on-site.

- .14 Contractor to provide portable toilets. Toilets on-site are for public use only. Locate where agreeable to the Departmental Representative.
- .15 Contractor is advised that site exposure risks include, but are not limited to:
 - .1 Poison Ivy
 - .2 Stinging Nettle
 - .3 Rattle snakes
 - .4 Ticks (possible exposure to Lyme Disease)
 - .5 Bears (especially if food is not controlled)
- .16 The Contractor is to obtain and pay for all permits required for completion of the Work, including the Building Permit. Do not start construction until the Building Permit has been issued. Provide copies of all other permits to the Departmental Representative and post on site where required. Contractor to ensure that the permit is closed on completion of the works.

1.5 TEMPORARY LIGHTING

- .1 Provide and maintain temporary lighting as required for safe demolition and working conditions per British Columbia Occupational Health and Safety Regulations.
- .2 Provide motion-activated lights on swing stage or scaffold as a security measure when the Contractor is not on site. Ensure that no loose debris is left near the motion sensor.

1.6 TEMPORARY FIELD OFFICES AND SHEDS

- .1 Contractor may install temporary work trailer. Washroom facilities at the site may be used by the Contractor provided cleanliness and good working function of the facilities is maintained.
- .2 Provide or construct work sheds for storage of tools, equipment and materials, which may be damaged by weather.
- .3 Provide and maintain a field office for the Contractor's personnel that is equipped with lights, power, and tables for drawing examinations.
- .4 Maintain sheds in a clean and orderly condition to the Departmental Representative's satisfaction.
- .5 Provide suitable hardware and locks on doors to sheds to reasonably secure them and keep locked when unsupervised.
- .6 Field sheds shall be weather tight and have floors elevated above grade.

- .7 Relocate sheds as required by the progress of the Work. Remove sheds from the Site when directed or when they are no longer required.

1.7 TRAFFIC CONTROL AND SIGNAGE

- .1 Provide all required signage necessary to protect the public from the construction and work area, control pedestrian and/ or vehicular traffic flow, and to inform users that construction activity is in progress. Signage is to be of a professional quality to the Departmental Representative's satisfaction.
- .2 The Contractor is to provide flagmen and/ or traffic control lights as necessary to maintain safe traffic flow through the work areas.
- .3 Install sign at trailhead indicating the walkway and bird viewing platform are temporarily closed. Indicate project duration and contact number of ministry for queries. Signage to be agreed with Departmental Representative prior to installation.

1.8 PROTECTION OF WORK AND PROPERTY

- .1 The Contractor shall take all reasonable precautions necessary to protect the Work and property from damage during performance of the Contract, and shall make good any damage to the Work or property caused by the Contractor or any of its Subcontractors.
- .2 Ensure all property is protected from dust and damage. Interior areas that require access outside of working hours are to be cleaned at the end of each work shift to provide a functional environment for the user
- .3 Dust, dirt, construction debris, water and fumes from the Work must be contained so as not to affect areas that are to remain in operation outside of the designated work areas. Resulting damage caused by contamination is the responsibility of the Contractor.
- .4 The Contractor is responsible for any damage to all property, mechanical equipment, motors, elevator equipment, fixtures, air intakes, etc., resulting from dust contamination from the Work.
- .5 Protection shall be provided for all entrance and exit-ways.
- .6 Contractor shall patch and repair all finishes or painted surfaces damaged during the course of the Work. This includes surfaces damaged by tape, fasteners, or similar materials during hoarding and protection.
- .7 Any resulting property losses due to compromised building security, shall be the responsibility of the Contractor.

1.9 CONSTRUCTION BARRIERS AND ENCLOSURES

- .1 All work areas are to be completely enclosed by hoarding and only accessible to the Contractor and the Departmental Representative.
- .2 Contractor shall supply and construct hoarding, barriers and enclosures as indicated in these specifications, on the drawings, and as directed by the Departmental Representative as the construction progresses.
- .3 No extras shall be entertained for hoarding, barriers and enclosures after bids close unless the scope of work is significantly changed.
- .4 Anchor holes are to be repaired after construction hoarding has been removed. Contractor to repair all finishes and painted surfaces damaged by fastening materials used as part of the hoarding and protection systems.
- .5 Simple barriers required to control traffic (i.e., not enclosing work areas) are to consist of screw jacks at maximum 8'-0" centres with nylon webbing (4'-0" high snow fence) between each screw jack. Jacks are to be fully tightened to plywood spacers at the slab surface and soffit, and nylon webbing is to be securely fastened to all jacks. Directional signs are required.
- .6 Restrict access for unauthorized personnel by placing barricades or posting guards around areas of the Work. Unauthorized personnel shall mean the public and anyone not directly concerned with the execution, supervision or inspection.

1.10 PROTECTION OF EXISTING EXPOSED FACILITIES / SERVICES

- .1 The Contractor shall make allowance in the price to cover all costs of temporary removal and replacement and/or relocation of existing electrical wiring and hardware required for completion of the Work.
- .2 All exposed conduit, fixtures, attached devices, wet sprinkler fire system plumbing, mechanical system components, louvers and ducts are to be protected or Contractor to correct damages at their own expense. Contractor to promptly report any damage to the Departmental Representative.
- .3 Prior to commencing the Work, contact the Departmental Representative to locate all protective or alarm systems and sensors. All services shall be protected against damage or interruption. Provide Departmental Representative with 48 hours minimum advance notice of any necessary interruption. All claims resulting from damage shall be the responsibility of the Contractor.
- .4 The Contractor shall restore landscaping beds in the area of work to their original plantable state after the work is complete. The Departmental Representative will arrange to remove and store for replanting, all landscaping including plants, shrubs, trees, etc. impacted by the work.

1.11 WALK-THROUGH INSPECTION OF SITE

- .1 The Contractor is to perform a thorough inspection of the site prior to the start of Work, and provide a written notice to the Departmental Representative detailing all damaged property as well as all items that appear to be of poor working order or appearance (i.e. sign fixtures, dirt, etc.).
- .2 Upon receiving this notice, the Departmental Representative will verify the validity of the items listed.
- .3 If written notice is not given within five (5) days of commencement of Work, it will be assumed that the Contractor has reviewed the site and has accepted the condition of the property as being free of damage.
- .4 Any damages not listed as part of the written notice of clause 1.15.1 above, found after the completion of the Work will be the sole responsibility of the Contractor to rectify. These rectifications shall be completed in a timely and satisfactory manner.

1.12 THE WORK, WORK IN PROGRESS, PROPERTY AND PERSONS

- .1 Protect the Work during construction from damage by weather.
- .2 Provide protection as required to protect work in progress and other property from damage and to provide suitable conditions for the progress of finishing work.
- .3 Take reasonable and required measures, including those required by authorities having jurisdiction, to protect the public and those employed on the Work from bodily harm.
- .4 Comply with requirements of the British Columbia Occupational Health and Safety Regulations and Regulations for Construction Projects.
- .5 The Contractor shall be prepared to provide respirators, dust protection, ear protection, hard hats, etc. for those employed by the Departmental Representative at the Site.
- .6 Direct all Subcontractors to protect their own work, existing property, adjacent public and private property and work of other Sections from damage while working.

1.13 ENVIRONMENTAL PROCEDURES

- .1 Construction equipment to be operated on land only.
- .2 Waterways to be kept free of excavated fill, waster material and debris
- .3 Ensure a dewatered condition for operation of equipment within watercourses.

- .4 Install stabilized entrances at equipment access points to dewatered watercourses.
- .5 Use rubber tracked machinery when working on watercourse or wetland bed material.
- .6 Design and construct temporary crossings to minimize environmental impact to wetland.
- .7 Dumping excavated fill, waste material, or debris in watercourse or wetland is prohibited.
- .8 Silt Fencing:
 - .1 Consisting of non-woven geotextile with manufactured seams as resistant as the geotextile materials itself. The geotextile shall be in one piece.
 - .2 Stakes to be natural wood, minimum 1.5 meters in length, sized to withstand peak flows.
 - .3 Provide silt fencing at locations where wetland crossing occur.
- .9 In wetland systems, maintain existing hydrological conditions.
- .10 Minimize disturbance to vegetated buffer zones and protect trees and plants on site and adjacent properties where indicated.
- .11 Leave cuttings from trees and other vegetation on site as brush piles to allow for natural degradation.

1.14 CLEARING AND GRUBBING

- .1 Contractor to ensure that clearing and grubbing is minimized, review extent with Departmental Representative prior to proceeding.
- .2 Clearing consists of cutting off trees and brush vegetative growth to not more than specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris. Prepare the site to a state suitable for the works of the project. Roots and other debris may remain in-place. Claims of extra cost for future scopes will not be accepted.
- .3 Close-out clearing consists of cutting off standing trees, brush, shrub, roots, stumps and embedded logs. Removing at, or close to, existing grade and disposing of fallen designated trees, and disposing of felled trees and debris.
- .4 Clearing isolated trees consists of cutting off to not more than specified height above ground of designate trees, and disposing of felled trees and debris

- .5 Underbrush clearing consists of removal from treed areas of undergrowth, deadwood, and trees smaller than 50 mm trunk diameter and disposing of fallen timber and surface debris.
- .6 Grubbing consist of excavation and disposal of stumps and roots to not less than specified depth below existing ground surface.
- .7 Prevent damage to natural, features, water courses, site appurtenances and the bird viewing tower, which are to remain.
 - .1 Repair damaged items to approval of Departmental Representative.
 - .2 Replace trees designated to remain, if damaged, as directed by Departmental Representative.
- .8 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- .9 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .10 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- .11 No on-site burning is permitted.
- .12 Leave ground surface in condition suitable for helical pile installation and construction of the boardwalk to approval of Departmental Representative.
- .13 Leave cuttings from trees and other vegetation on site as brush piles to allow for natural degradation.

1.15 LOCATION OF EXISTING UTILITIES

- .1 The Contractor shall be responsible for arranging for the location of all existing utilities prior to construction and protection of it during construction.

1.16 WORK SITE SAFETY – CONTRACTOR IS “PRIME CONTRACTOR”

- .1 The Contractor shall, for the purposes of the British Columbia Occupational Health and Safety Regulations, and for the duration of the Work and Contract:
 - .1 Be designated as “Prime Contractor” pertaining to safety at the “Work site”.
 - .2 Do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the Act and its

regulations, as required to ensure the health and safety of all persons at the “Work site”.

- .2 The Contractor shall direct all subcontractors, workers and any other persons at the “Work site” on safety related matters, to the extent required to fulfill its “Prime Contractor” responsibilities pursuant to the Act.

1.17 MATERIAL AND EQUIPMENT

- .1 Unless otherwise specified, Contractor shall provide, maintain and pay for all materials, tools, machinery, equipment, temporary facilities, controls and conveniences necessary for execution of the Work. All materials shall be new, of merchantable quality, and suitable for the intended purpose.
- .2 Unless otherwise specified, comply with Manufacturer’s latest printed instructions for materials and installation methods. Notify the Departmental Representative in writing of any conflict between the Contract Documents and Manufacturer’s instructions. Deliver, store and maintain packaged materials with Manufacturer’s seals and labels intact.

1.18 COORDINATION

- .1 The Contractor is responsible for coordination of trades. Lines of demarcation between Contractor’s work and trades’ work are solely the responsibility of the Contractor. The Departmental Representative assumes no responsibility for division of the Work or for any jurisdiction regarding such division.
- .2 Contractor is responsible for coordination with the Departmental Representative of all on-site activity as it affects the operation of the building.
- .3 The Contractor is to notify the Departmental Representative at least 24 hours in advance for site review. No work shall be covered or concealed until the Departmental Representative has reviewed it, unless they have informed the Contractor that a site review will not be performed. Such review does not absolve the Contractor from their responsibility to perform the Work in accordance with the contract documents.

1.19 WASTE REMOVAL AND CLEANING

- .1 The Contractor shall maintain the Place of the Work free from unsightly or hazardous accumulations of waste materials and rubbish, and shall perform all required cleaning during the Work.
- .2 Provide on-site containers for collection of waste materials and rubbish.
- .3 All wastes, which create hazardous conditions, must be removed from the premises daily.

- .4 Disposal of all waste products to be performed in strict accordance with the product manufacturer Safety Data Sheets (SDS), and in accordance with the provincial Waste Control Regulations. Drainage systems shall not be used to dispose of Project wastes and materials.
- .5 Ensure all moisture sensitive equipment (i.e. exposed electrical and mechanical systems, etc.) are removed or protected against moisture infiltration during washing and dust-generating activities.
- .6 Remove all construction-related grease, dust, dirt, stains, labels, fingerprints, overspray and other foreign materials immediately prior to the Departmental Representative's final review. Return all adjacent areas, equipment, duct work, etc. to the Departmental Representative in a dust-free condition. Leave site in a neat and tidy condition at completion of the Work.

1.20 SUPERINTENDENCE

- .1 The Contractor shall provide a full time on-site Superintendent that is responsible for the quality, control, organization, and coordination of all phases of the Work. The Superintendent shall be in attendance at all site meetings.
- .2 Superintendence shall be satisfactory to the Departmental Representative.
- .3 Superintendence shall be deemed unsatisfactory and changes or additions to superintendence can be demanded by the Departmental Representative when control, organization, or coordination of the Work is not adequate, the quality of the Work does not meet the Contract Document requirements, directions given in accordance with the Contract Documents are not followed, or progress is behind schedule.

1.21 ADMINISTRATION OF PROJECT MEETINGS

- .1 The Departmental Representative shall preside at meetings.
 - .1 A representative of the Departmental Representative shall record the minutes, include significant proceedings and decisions, and identify "action by" parties.
 - .2 The Departmental Representative shall reproduce and distribute copies of minutes to meeting participants and to affected parties not in attendance.
- .2 The Departmental Representative shall schedule and administer project meetings.
 1. Prepare agenda for meetings.
 2. Distribute written notice of each unscheduled meeting three (3) days in advance of meeting date to Contractor, Departmental Representative, and relevant Subcontractors.

- .3 The Contractor shall provide physical space and make arrangements for meetings on site.
- .4 Representatives of Contractor, Subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.

1.22 PRE-CONSTRUCTION MEETING

- .1 After award of Contract, a meeting of all parties in the Contract shall be held to discuss and resolve administrative procedures and responsibilities.
- .2 Representatives of the Departmental Representative, Contractor, major Subcontractors, and construction review personnel will attend.
- .3 The Departmental Representative shall establish a time and location of the meeting and shall notify concerned parties at least five (5) days before the meeting.
- .4 **Agenda to include the following:**
 - .1 Appointment of official representatives of participants of the Work.
 - .2 Schedule of Work, progress scheduling.
 - .3 Shop drawings (if required) and schedule of shop drawing submissions.
 - .4 Requirements of temporary facilities, site signage, hoarding, dust protection, offices, storage sheds, utilities, fences.
 - .5 Delivery schedule of critical equipment.
 - .6 Site security.
 - .7 Contemplated change orders, procedures, approvals required.
 - .8 Take over procedures, acceptance, warranties.
 - .9 Monthly progress claims, administrative procedures, holdbacks.
 - .10 Appointment of inspection and testing agencies or firms.
 - .11 Insurance, transcript of policies.

1.23 PROGRESS MEETING

- .1 During course of Work the Departmental Representative or the Contractor shall schedule progress meetings every two weeks. Further progress meetings may be scheduled by the Contractor or Departmental Representative as required to expedite the Work.
- .2 The Contractor, major Subcontractors involved in the Work, and Departmental Representative when required, are to be in attendance.
- .3 The Departmental Representative shall notify parties minimum three (3) days prior to scheduled meetings of any changes to time or place.
- .4 **Agenda to include the following:**
 - .1 Review, approval of minutes of previous meeting.

- .2 Review of Work progress since previous meeting.
- .3 Field observations, problems which impede construction schedule, conflicts.
- .4 Progress, schedule, during succeeding work period.
- .5 Corrective measures and procedures to regain projected schedule.
- .6 Revisions to construction schedule.
- .7 Review of off-site fabrication delivery schedules.
- .8 Review submittal schedules; expedite as required.
- .9 Maintenance of quality standards.
- .10 Pending changes and substitutions, Notices of Proposed Change, Change Orders.
- .11 Review proposed changes for effect on construction schedule and on completion date.
- .12 Other business.

Part 2 Products

Not applicable.

Part 3 Execution

Not applicable.

END OF SECTION

Part 1 General

- .1 This section specifies general requirements and procedures for Contractor shop drawing, product data, sample, and mock-up submissions for the Departmental Representative's review. Additional specific submission requirements may be specified in other specification sections.
- .2 Do not proceed with work until relevant submissions are reviewed by Departmental Representative.
- .3 Present shop drawings, product data, samples and mock-ups in SI metric units. Where items or information is not produced in SI metric, converted values are acceptable.
- .4 Contractor's responsibility for errors or omissions in any submission is not relieved by Departmental Representative's review of the submission.
- .5 Notify Departmental Representative, in writing at time of submission, of any deviations from the requirements of Contract Documents that form part of submissions. Also indicate the reasons for the deviations.
- .6 Contractor's responsibility for deviations from the requirements of the Contract Documents in submissions is not relieved by Departmental Representative's review of the submissions unless Departmental Representative provides written acceptance of the identified deviations.
- .7 Make any changes in submissions that Departmental Representative may require consistent with the Contract Documents and resubmit where directed by Departmental Representative.
- .8 Notify Departmental Representative in writing of any revision other than those requested by Departmental Representative when resubmitting.

1.1 SUBMISSION REQUIREMENTS

- .1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- .2 Submit electronic copies of product data, manufacturer's catalogue sheets, brochures, literature, performance charts and diagrams.
- .3 Comply with the following requirements in regard to submission of product data:
 - .1 Delete information not applicable to project.
 - .2 Supplement standard information to provide details applicable to project.

- .3 Provide certification of compliance to applicable codes.
- .4 Provide manufacturer's certification as to current production.

- .4 Allow ten (10) working days for Departmental Representative's review of each submission.

- .5 Accompany submissions with an electronic transmittal letter that contains:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.

- .6 Submission shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
 - .6 After Departmental Representative's review, distribute electronic copies to relevant affected subcontractors.

1.2 SHOP DRAWINGS

- .1 Provide electronic copies of shop drawings pertaining to installations and fabrications required by the Contract for the Departmental Representative's review prior to commencing work. Full-size hard copy submissions are also to be provided if requested by the Departmental Representative. Unless noted otherwise, shop drawings shall be submitted for the following work:
 - .1 Helical pile foundations
 - .2 Guard system
- .2 As part of the RJC's field services, RJC will review shop drawings pertaining to work shown on RJC's drawings by means of an appropriate rational sampling procedure and will comment on the accuracy with which the Contractor prepared the shop drawings.
- .3 Review of shop drawings is for the sole purpose of ascertaining conformance with the general design concept and is not an approval of the detail design inherent in the shop drawings. The design responsibility shall remain with the Contractor submitting the shop drawings.
- .4 Review of shop drawings shall not relieve the Contractor of their responsibility for errors and omissions in the shop drawings or for meeting all requirements of the Contract Documents.
- .5 The Contractor is solely responsible for information pertaining to the fabrication process, techniques of construction and installation, and for co-ordination of the work of all subcontractors.
- .6 Shop drawings shall be complete and include any required seals from a professional engineer registered in the jurisdiction where the project is located prior to submission.
- .7 All shop drawings comprising a revised submission shall indicate the revised content by means of clouding or other suitable markings.
- .8 Cross-reference shop drawing information to applicable portions of Contract Documents.

1.3 PRODUCT DATA

- .1 Product data: manufactures catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.
- .2 Submit electronic copies of product data.
- .3 Sheet size: 215x280 mm.

- .4 Delete information not applicable to project.
- .5 Supplement standard information to provide details applicable to project.
- .6 Cross-reference product data information to applicable portions of Contract Documents.

1.4 SAMPLES

- .1 Samples: examples of materials, equipment, quality, finishes, workmanship.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be reviewed.

1.5 MOCK-UPS

- .1 Mock-ups: field-erected examples of work complete with specified materials and workmanship.
- .2 Erect mock-ups at locations acceptable to Departmental Representative.
- .3 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be reviewed.

Part 2 Products

Not applicable.

Part 3 Execution

Not applicable.

END OF SECTION

Part 1 General

PWGSC Update on Asbestos Use

Effective April 1, 2016, all Public Works and Government Services of Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit use of asbestos-containing materials.

COVID 19

All contractors shall follow Canadian Construction Association COVID-19 - Standardized Protocols for All Canadian Construction Sites.

1.1 RELATED SECTIONS

.1 Refer to the following current sections as required:

.1 Section 06 10 00 – Rough Carpentry

1.2 REFERENCE

.1 Government of Canada.

.1 Canada Labour Code - Part II

.2 Canada Occupational Health and Safety Regulations.

.2 National Building Code of Canada (NBC):

.1 Part 8, Safety Measures at Construction and Demolition Sites.

.3 Canadian Standards Association (CSA) as amended:

.1 CSA Z797-2009 Code of Practice for Access Scaffold

.2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes

.3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures

.4 CSA Z1006-10 Management of Work in Confined Spaces

.5 CSA Z462 – Workplace Electrical Safety Standard

.4 National Fire Code of Canada 2010 (as amended)

.1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.

.5 Province of British Columbia:

.1 Workers Compensation Act Part 3-Occupational Health and Safety.

.2 Occupational Health and Safety Regulations

.3 WorkSafe BC OHS Regulation Part 19 – Electrical Safety

1.3 WORKERS' COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

1.4 COMPLIANCE WITH REGULATIONS

- .1 PSPC may terminate the Contract without liability to PSPC where the Contractor, in the opinion of PSPC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.5 SUBMITTALS

- .1 Submit to Departmental Representative submittals listed for Review in accordance with Section 01 33 00 – Submittals.
- .2 Work affected by submittal shall not proceed until review is complete.
- .3 Submit the following:
 - .1 Site Specific Health and Safety Plan.
 - .2 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.
 - .3 Copies of incident and accident reports.
 - .4 Complete set of current Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .5 Emergency Procedures
- .4 The Departmental Representative will review the Contractor's Site Specific Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .5 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.

- .6 Submission of the Site Specific Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
 - .1 Be construed to imply approval by the Departmental Representative.
 - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
 - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.6 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor for work under this contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial, Territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.7 HEALTH AND SAFETY COORDINATOR

- .1 The Health and Safety Coordinator:
 - .1 Be responsible for completing all health and safety training and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.
 - .2 Be responsible for implementing, revising, daily enforcing, and monitoring the Site Specific Health and Safety Plan.
 - .3 Be on site during execution of work.
 - .4 Have a minimum two (2) years' site-related working experience.
 - .5 Have working knowledge of the applicable occupational safety and health regulations.

1.8 GENERAL CONDITIONS

- .1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
 - .1 Provide appropriate means by use of barricades, fences, warning signs,

- traffic control personnel, and temporary lighting as required.
- .2 Secure site at night time or provide security guard as deemed necessary to protect site against entry.

1.9 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
 - .1 Federal employees and general public.

1.10 UTILITY CLEARANCES

- .1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work
- .2 The Contractor will not rely solely upon the Reference Drawings or other information provided for utility locations.

1.11 REGULATORY REQUIREMENTS

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

1.12 WORK PERMITS

- .1 Obtain specialty permit[s] related to project before start of work.

1.13 FILING OF NOTICE

- .1 The General Contractor is to complete and submit a Notice of Project as required by Provincial authorities.
- .2 Provide copies of all notices to the Departmental Representative.

1.14 HEALTH AND SAFETY PLAN

- .1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.

- .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 General safety rules for project.
 - .5 Job-specific safe work procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 Occupational Health and Safety Committee/Representative procedures.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and record keeping procedures.
 - .11 COVID-19 Protocols and Procedures
 - .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
 - .3 List hazardous materials to be brought on site as required by work.
 - .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
 - .5 Identify personal protective equipment (PPE) to be used by workers.
 - .6 Identify personnel and alternates responsible for site safety and health.
 - .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
- .4 Revise and update Site Specific Safety Plan and/or Health and Safety Plan as required, and re-submit to the Departmental Representative.
- .5 The review of Site Specific Safety Plan and/or Health and Safety Plan by the Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Safety Plan and/or Health and Safety Plan of responsibility for meeting all requirements of construction and Contract documents and legislated requirements.

1.15 EMERGENCY PROCEDURES

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to work and as per legislated regulations.
 - .3 Local emergency resources.
 - .4 Departmental Representative [site staff].
 - .5 A route map with written directions to the nearest hospital or medical clinic.
- .2 Include the following provisions in the emergency procedures:
 - .1 Notify workers and the first-aid attendant, of the nature and location of the emergency.
 - .2 Evacuate all workers safely.
 - .3 Check and confirm the safe evacuation of all workers.
 - .4 Notify the fire department or other emergency responders.
 - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
 - .6 Notify Departmental Representative [site staff].
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:
 - .1 Work at high angles.
 - .2 Work with hazardous substances.
 - .3 Workplaces where there are persons who require physical assistance to be moved.
- .4 Design and mark emergency exit routes to provide quick and unimpeded exit.
- .5 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.
- .6 Contractors must not rely solely upon 911 for emergency rescue in a confined space, working at heights, etc.

1.16 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .2 Where use of hazardous and toxic products cannot be avoided:

- .1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable SDS and WHMIS 2015 documents as per Section 01 33 00 – Submittals.
- .2 In conjunction with Departmental Representative schedule to carry out work during "off hours" when tenants have left the building.
- .3 Provide adequate means of ventilation in accordance with Section 01 10 01 – General Requirements.
- .4 The contractor shall ensure that the product is applied as per manufacturers recommendations.
- .5 The contractor shall ensure that only pre-approved products are brought onto the work site in an adequate quantity to complete the work.

1.17 HAZARDOUS MATERIAL

- .1 Carry out any activities involving hazardous material in accordance with applicable Provincial regulations.
- .2 Removal and handling of hazardous materials in accordance with provincial regulation and WorkSafe BC.
- .3 Contractor to assume all paint on site contains lead and to follow WorkSafe BC procedures when disturbing any painted surface.
- .4 If any other such materials are detected on site, the Contractor is to immediately notify the Department Representatives so that the appropriate measures can be determined and implemented.

1.18 ELECTRICAL SAFETY REQUIREMENTS

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
 - .1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.
 - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

1.19 OVERLOADING

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

1.20 FALSEWORK

- .1 Design and construct falsework in accordance with CSA S269.1- 1975 (R2003).

1.21 SCAFFOLDING

- .1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA Z797-2009 and B.C. Occupational Health and Safety Regulations.

1.22 FIRE SAFETY AND HOT WORK

- .1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.
- .3 Hot work permits are a mandatory requirement for any hot work activities.

1.23 FIRE SAFETY REQUIREMENTS

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.
- .3 Portable gasoline and diesel fuel tanks are not permitted on most federal work sites. Approval from the Departmental Representative is required prior to any gas or diesel tank be brought onto the work site.

1.24 FIRE PROTECTION AND ALARM SYSTEM

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut off.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

1.25 UNFORESEEN HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

1.26 MEETINGS

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

1.27 POSTED DOCUMENTS

- .1 Post legible versions of the following documents on site:
 - .1 Site Specific Health and Safety Plan.
 - .2 Sequence of work.
 - .3 Emergency procedures.
 - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - .5 Notice of Project.
 - .6 Floor plans or site plans.
 - .7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
 - .8 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .9 Material Safety Data Sheets (MSDS).
 - .10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.
- .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

1.28 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.

- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General Requirements

1.1 TAKE OVER PROCEDURE

.1 Contractor's Review

- .1 The Contractor and their Subcontractors shall conduct a review of the work and correct all noted deficiencies.
- .2 The Contractor shall notify the Departmental Representative, in writing, of satisfactory completion of the "Contractor's Review" after the correction of all noted deficiencies and shall request a "Departmental Representative's Review".

.2 Departmental Representative's Review

- .1 The review team shall consist of the Departmental Representative and the Contractor.
- .2 The Departmental Representative will prepare a list of deficiencies noted during the "Departmental Representative's Review" and will issue the list to the Contractor.
- .3 The Departmental Representative will determine the value of work associated with any outstanding deficiencies noted during the Departmental Representative's Review. Payment of these retained funds will be withheld until the deficiencies have been rectified to the satisfaction of the Departmental Representative.
- .4 The Contractor shall correct all deficiencies indicated on the list in a timely and satisfactory manner.

Final Review

- .1 The Contractor shall request a "Final Review" when the Contractor is satisfied that all deficiencies have been corrected. The request shall be made in writing.
- .2 The "Final Review" shall be conducted by the Departmental Representative and the Contractor.

.3 Certificate of Completion

- .1 The Contractor must submit a request in writing to the Departmental Representative for a Certificate of Completion.
- .2 The Contractor shall comply with the following during Contract close-out:
 - .1 The requirements of the BC Builders Lien Act.
 - .2 The requirements of the Workers Compensation Act.
 - .3 All other contractual requirements

.4 Total Performance

- .1 Immediately following the issuance of the Certificate of Completion, the Departmental Representative, in consultation with the Contractor, will establish a reasonable date for the “Total Performance of the Work”.
- .2 The Contractor shall supply all guaranties and review certificates in accordance with the requirements of the Contract Documents prior to the date established for “Total Performance of the Work”.

.5 Release of Holdback

- .1 The lien holdback amounts will be released pursuant to the BC Builders Lien Act.

Part 2 Products

Not applicable

Part 3 Execution

Not applicable

END OF SECTION

1.0 MANUAL

- .1 An organized compilation of maintenance and renewal data including detailed technical information, documents and records describing maintenance of individual products or systems as specified in individual sections of Divisions 2 through 32. Also including identification of, and contact information for, specific individual trades and suppliers for work as specified in individual sections of Divisions 2 to 32.

2.0 GENERAL

- .1 Assemble, coordinate, bind and index required maintenance and renewal data into Maintenance and Renewal Manual.
- .2 **Submit a review copy of the completed Maintenance and Renewal Manual to the Departmental Representative two (2) weeks prior to application for Certificate of Substantial Performance. Attach draft or example copies of specific warranties/guaranties if required.**
 - .1 A Deficiency Holdback of \$5,000 (prior to factoring) may be enforced for non-delivery of the completed maintenance manual as noted above.
- .3 Submit electronic and two (2) hard copies in English.
- .4 Organize data into same numerical order as Contract specifications.
- .5 Material: Label each section with tabs protected with celluloid covers fastened to dividing sheets.
- .6 Type lists and notes. Handwritten summaries will not be accepted.
- .7 Drawings, diagrams and manufacturers literature must be legible. Provide direct print offs, in colour where applicable, from manufacturers websites. Copies of re-faxes shall not be accepted.
- .8 Refer also to specific Third Party Warranty Provider's requirements.

3.0 BINDERS

- .1 Binders: vinyl, hard covered, 3" "D" ring, loose leaf, sized for 215 x 280 mm paper, with spine pocket.
- .2 Identify contents of each binder on spine.

4.0 CONTENTS

- .1 Cover sheet containing:
 - .1 Date submitted.
 - .2 Project title, location and project number.
- .2 Maintenance and Renewal Manual, including but not limited to the following:

- .1 General Introduction – explain the nature of operations and maintenance items, as well as items that constitute renewals.
- .2 Contacts – Include a summary sheet of contact names, telephone, fax, e-mail and mailing addresses for all applicable parties. Include such parties as:
 - .1 General Contractor
 - .2 Specific trades
 - .3 Specific manufacturers
 - .4 Related Departmental Representatives
 - .5 Etc.
- .3 Maintenance Plan – include, in tabular form, a maintenance plan identifying specific components, recommended actions and time frames. Include such items as:
 - .1 Helical piles
 - .2 Plank decking
 - .3 Guard posts
 - .4 Etc.
- .4 Renewals Plan – include, in tabular form, a summary outlining the timing, cost, and nature of component replacement. Include such items as:
 - .1 Helical piles
 - .2 Plank decking
 - .3 Guard posts
 - .4 Etc.
- .5 Inspection Form – include a sample inspection form. In tabular form, identify the purpose of the inspection and how, when and where the inspections should take place. Provide space for recording of weather conditions, general observations and remarks.
- .6 Shop Drawings – attach record copies of all final applicable shop drawings.

END OF SECTION

Part 1 General

1.1 WORK INCLUDED

- .1 Installation of hoarding/dust protection and shoring around the Work as indicated per section 01 10 01 – General Requirements.
- .2 Provide all labour, material, equipment and supervision required to remove and dispose of all material and debris resulting from the removal of the existing boardwalk.
- .3 Survey existing conditions and correlate with requirements indicated to determine extent of selective site demolition required. Survey to from basis of final layout for new installation. Submit survey to the Departmental Representative for review.

Part 2 Products

Not applicable.

Part 3 Execution

3.1 INSPECTION

- .1 Visit and examine the site and note all characteristics and features affecting the Work of this Section.
- .2 Ensure all services, whether buried; built-in or exposed are properly identified as to position, type of service, size, direction of flow.
- .3 Inspect materials, equipment, components to be re-used or turned over to the Departmental Representative. Note their condition and advise the Departmental Representative in writing of any defects or conditions which would affect their removal and re-use.

3.2 PREPARATION

- .1 Prevent movement, settlement or damage of elements of any existing areas which are to remain. Provide bracing, shoring and supports as required. Protect existing surfaces not to be restored from damage during removal procedures.

- .2 Cut and/or cap existing services within the work area, if any, prior to start of Work as required, but do not affect the services of areas not under construction or essential to the ongoing operation of the building.
- .3 In all cases, exercise all reasonable care during removal operations to avoid damaging items to be salvaged, re-used, or items that are not part of the Scope of Work.
- .4 Seal off all work areas to prevent dust and debris from affecting other areas outside of the work area. Prevent public access to areas being repaired.
- .5 Tape and/ or seal and provide protection to all mechanical and electrical services and all fire alarm and security devices still functioning adjacent to the work areas to prevent damage resulting from dust, water, or impact.
- .6 Cover drains as required to prevent any construction related materials and debris from entering the drains. Ensure that all drains continue to operate as required during construction.
- .7 Remove or protect in place all surface mounted or permanent fixtures not to be demolished from damage during demolition procedure.
- .8 Apply filter cloth to all exhaust and ventilation vents within work area to prevent dust generated by the construction activity from escaping.
 - .1 Contractor shall clean, or replace filter cloth if the filter cloth becomes unsuitably dirty as determined by Departmental Representative.
- .9 Provide proposed demolition sequence to the Departmental Representative for review prior to commencing work.
- .10 Submit details of proposed bracing to the Departmental Representative for review prior to commencing work.
 - .1 Details to be designed and stamped by Registered Professional Engineer in the Province of British Columbia.

3.3 DEMOLITION

- .1 Remove and dispose of material and debris resulting from the removal of soils and granular subgrades as per Contract Documents.

- .2 Remove existing mechanical and electrical services associated with the areas of the boardwalk to be demolished. The removal of these services is to be accomplished prior to the commencement of the demolition work outlined in the Contract Documents.
- .3 Demolition procedures and equipment shall meet all applicable noise-control by-laws and regulations of the location of the work.
- .4 Provide shoring to support the boardwalk when removals reduce its load-carrying capacity, as directed by the Departmental Representative. No payment will be made for such shoring as it is to be included in the cost of repair as outlined in these documents.
- .5 Disruption of items designated to remain in place is not permitted. Where any such damage is done, it is to be repaired by the Contractor at their own expense to the approval of the Departmental Representative.
- .6 All required re-painting due to damage, overspray, etc. is the Contractor's responsibility.
- .7 At end of each day's work, leave work in safe condition so that no part is in danger of causing injury or damage.

3.4 WASTE DISPOSAL

- .1 Disposal of waste products and material is to be in strict accordance with the product manufacturer's material safety data sheets and in accordance with the governing waste control regulations.
- .2 Store volatile wastes or material in covered metal containers. All wastes which create hazardous conditions must be removed from the premises daily.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 National Building Code of Canada 2015
- .2 CAN/CS-O86 – Engineering Design in Wood
- .3 CSA B111, Wire Nails, Spikes and Staples.
- .4 CAN/CSA-B34 – Miscellaneous Bolts and Screws
- .5 “Wood Design Manual” – Canadian Wood Council
- .6 “Wood Building Technology” – Canadian Wood Council
- .7 National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber, Latest Edition.

1.2 SUBMITTALS

- .1 For products treated with preservative by vacuum-pressure impregnation submit following information certified by authorized signing officer of treatment plant:
 - .1 Information listed in AWWA.M2 and revisions specified in CAN/CSA-080 Series, Supplementary Requirement to AWWA Standard M2 applicable to specified treatment.
 - .2 Moisture content after drying following treatment with water-borne preservative.
- .2 Submit product data for double hot-dipped galvanized nails confirming compliance with ASTM-153.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Protect materials from moisture upon delivery.
- .2 Store materials on raised supports. Cover materials with waterproof covering. Provide adequate air circulation and ventilation.
- .3 Do not store seasoned materials in wet or damp areas.
- .4 Store all materials in a dry environment. Do not cover materials having a moisture content of over 15%.

Part 2 Products

2.1 LUMBER MATERIALS

1. Lumber: Except as otherwise specified, lumber shall be softwood, S-P-F, S4S, kiln-dried, moisture content 15% or less, not finger jointed, and in accordance with the following standards:
 - .1 CAN/CSA O141.
 - .2 Graded and stamped in accordance with the National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber and by an agency certified by Canadian Lumber Standards Accreditation Board.
 - .3 All timber framing to be Douglas-Fir-Larch, No.1/No.2 grade or better.
- .2 Furring, Blocking, Strapping: S-DRY, douglas fir species.
 - .4 Board Sizes: “Standard” grade to NLGA, Paragraph 114c.
 - .5 Dimension Sizes: “Standard” grade to NLGA, Paragraph 122c.
- .3 Any timber not grade marked will be rejected.
- .4 All material shall be as called up on the drawings unless noted otherwise.
- .5 Finishes shall be detailed to accommodate shrinkage over time.

2.2 FASTENERS

- .1 Nail, Spikes and Staples: to CSA B111 and as follows:
 - .1 Use common spiral nails and spiral spikes, except where specified otherwise, for interior work.
 - .2 Fasteners in contact with borate treated lumber: hot-dipped galvanized finished steel.
 - .3 Fasteners in contact with ACQ treated lumber: stainless steel.
 - .4 Nail shall be common round steel wire nails. Nailing shall conform to the building code part 9 and “Wood Building Technology” published by the Canadian Wood Council. Nailing called up on these drawings is based on common nails. Nails are called up by length and shall conform to the following table.

LENGTH	DIAMETER	PENNY-WEIGHT
50 mm (2")	2.9 mm (0.113")	6d
65 mm (2 1/2")	3.3 mm (0.131")	8d
75 mm (3")	3.8 mm (0.148")	10d
80 mm (3 1/4")	3.8 mm (0.148")	12d
90 mm (3 1/2")	4.1 mm (0.162")	16d
100 mm (4")	4.9 mm (0.192")	20d
115 mm (4 1/2")	5.3 mm (0.207")	30d
125 mm (5")	5.8 mm (0.225")	40d

NOTE: SPIRAL OR PNEUMATIC NAILS MAY BE USED IF THEY CONFORM TO THE TABLE ABOVE.

- .5 Miscellaneous steel to be CSA G40.21 or approved equal.
- .6 Anchor rods shall be ASTM F1554 or ASTM A36 or approved equal. Anchor rods shall be deformed, threaded along the full length or hooked 40 mm at the bottom.
- .7 All fasteners and connection hardware to be hot dipped galvanized or stainless steel as specified.
- .8 Do not use pneumatically driven nails with joist hangers or connecting hardware nails for hardware should be as specified or supplied by the manufacturer.
- .2 Bolt, Nut, Washer, Screw and Pin Type Fasteners: hot-dipped galvanized finished steel for all fasteners in contact with borate treated lumber or stainless steel for all fasteners in contact with ACQ treated lumber, unless specified otherwise.
- .3 Joist Hangers: hot-dipped galvanized finished steel for all hangers, plates, straps, etc. in contact with borate treated lumber or stainless steel for all such connectors in contact with ACQ treated lumber.
- .4 Do not combine stainless steel fasteners with galvanized hardware or vice-versa.

2.3 PRESERVATIVE TREATMENT

- .1 Treat following items in accordance with applicable CAN/CSA O80 commodity standard using alkaline copper quat type C (ACQ-C) or copper azole type B (CA-B) preservative to obtain minimum net retention of 4.0 kg/m³ of wood. Materials shall be kiln-dried after treatment
 - .1 All dimension lumber and panel materials directly exposed to moisture (i.e. deck boards, trellis and similar such framing, exposed stairs).

- .2 Inspection of products treated with preservative by vacuum-pressure impregnation will be carried out by an accredited inspection agency of the Canadian Wood Preservers Bureau (CWPB).
- .3 All treated lumber and plywood shall bear an identifying stamp in accordance with the CWPB, CSA 080 or AWPAs requirements.
- .4 Following water-borne preservative treatment, dry material to maximum moisture content of 15%.

2.4 ACCESSORIES

- .1 Field Applied Wood Preservative:
 - .1 For ACQ or CA preservative wood: Organic solvent, copper naphthenate, prepared in accordance with CSA O80.15, coloured green.
 - .2 For borate preservative wood: Water-based, borate-based, prepared in accordance with CSA O80.15, tint green.

Part 3 Execution

3.1 FIELD TREATMENT OF PRESERVATIVE TREATED AND EXISTING PRODUCTS

- .1 Field treat surfaces exposed by cutting, trimming or boring of preservative-treated items with liberal application of preservative and in accordance with AWPAs M4.
- .2 Apply preservative in accordance with manufacturer's instructions. Apply by dipping, by brush or by spray to completely saturate and maintain wet film on surface for minimum three minute soak on lumber and one minute soak on plywood. Allow to dry 24 hours prior to covering.

3.2 ERECTION OF FRAMING MEMBERS

- .1 Install members true to line, levels and elevations, square and plumb. Space uniformly.
- .2 Construct continuous members from pieces of longest practicable length.
- .3 Install spanning members with "crown-edge" up.
- .4 Install blocking to facilitate installation of finishing materials, fixtures, specialty items and trim.

- .5 Select exposed framing for appearance. Install lumber materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.
- .6 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .7 Countersink bolts where necessary to provide clearance for other work.
- .8 All wood frame construction shall satisfy the following construction tolerances as a minimum. Refer to architectural and warranty requirements for additional tolerance specifications.
 - .1 Floors – not more than 6 mm in 3 m out of level.
 - .2 Overall – Not more than 10 mm difference in measurements from dimensions shown on contract documents.

3.3 WOOD FURRING AND BLOCKING

- .1 Provide wood furring and blocking at locations indicated on Drawings and as specified.

END OF SECTION

Part 1 General

1.1 DOCUMENTS

- .1 This section, along with the drawings, forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.

1.2 DESCRIPTION OF WORK INCLUDED

- .1 Provide all labour, materials, equipment and services necessary to design, supply, install, and test steel pipe piles or helical steel piles as shown or indicated on the contract drawings and specifications.

1.3 DEFINITIONS

- .1 “Soils Engineer” shall mean a geotechnical engineer, registered in B.C, experienced in pile/helical pile design and retained by the Contractor.
- .2 “Specialty Engineer” is a Professional Engineer registered in B.C. who is experienced in the design of seismic soil anchor components. The Specialty Engineer shall be responsible for the soil anchor components designed by the Contractor and shall seal and sign the soil anchor shop drawings.

1.4 RELATED WORK SPECIFIED ELSEWHERE

- .1 Section 02 41 13 – Selective Demolition
- .2 Section 06 10 00 – Rough Carpentry

1.5 REFERENCE STANDARDS

- .1 Piling installation shall conform to the requirements of the following standards unless otherwise required by this specification:
 - .1 B.C. Building Code - 2018.
 - .2 ASTM A252-98(2002), Standard Specification for Welded and Seamless Steel Pipe Piles.
 - .3 CAN/CGSB-1.171-[98] , Inorganic Zinc Coating.
 - .4 CSA-G40.20/G40.21-[2004] , General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .5 CSA W47.1-[03] , Certification of Companies for Fusion Welding of Steel Structures.
 - .6 SPEC NOTE: CSA W48.1, Carbon Steel Covered Electrodes for Shielded Metal Arc Welding was withdrawn and replaced by CSA W48 (Developed in co-operation with the Canadian Welding Bureau).
 - .7 CSA W48-[06] , Filler Metals and Allied Materials for Metal Arc Welding.
 - .8 CSA W59-[03] , Welded Steel Construction (Metal Arc Welding) (metric version).
 - .9 CSA W186-[M1990(R2002)] , Welding of Reinforcing Bars in Reinforced Concrete Construction.

- .10 CSA-Z245.1-[02], Steel Pipe.
- .11 The Master Painters Institute/MPI ASM-[February 2004], Architectural Painting Specification Manual, MPI #19, Inorganic Zinc Rich Primer.
- .2 Where the standard is referred to in this specification it shall mean the documents specified in this clause and their referenced documents.

1.6 GEOTECHNICAL DESIGN

- .1 Contractor is to engage an experienced, B.C. registered geotechnical engineer to conduct a site condition assessment for the purpose of confirming pile/helical pile design and for review of in—situ testing of sample piles. Design and testing are to occur prior to full project installation. Minimum vertical load criteria are specified on the drawings.
- .2 Under specified loads piles shall not settle more than 5mm. This requirement shall be incorporated to the pile design and confirmed by in-situ pile testing. Test piles can be incorporated into the boardwalk. Test piles shall be installed at locations suitable to the Departmental Representative. Reaction piles can remain in-situ but are not to be incorporated into the work. Provide the Departmental Representative with field testing reports within 24 hours after completion of the load test. The written report is to either confirm capacity as required in the design, or propose changes based upon the results of the load test.

1.7 QUALIFICATIONS SUBMITTAL

- .1 Piling work shall be the responsibility of a specialty contractor who has a minimum of 5 years experience installing similar works in sensitive ecological settings.
- .2 Contractors equipment shall be capable of operating within the existing cleared space of the current boardwalk.
- .3 Contractors equipment shall be capable of installing pilings in the orientations and locations shown on the drawings. Contractor shall pay for any design revisions necessary to accommodate equipment after the close of tenders.

1.8 SHOP DRAWINGS SUBMITTAL

- .1 Submit shop drawings and detailed information regarding installation and testing to the Departmental Representative for review. Allow a minimum of ten (10) days for the review. Work proceeding prior to final review of shop drawings will be at the Contractor's risk.
- .2 Shop drawings and installation and testing details shall be prepared under the supervision of the Specialty Engineer. The Specialty Engineer shall verify, either by sealing the shop drawings or submitting a letter under seal, that the shop drawings were prepared under the Specialty Engineer's supervision and that the seismic soil anchor system meets the requirements of the structural drawings and specifications.
- .3 The review of the shop drawings will not relieve the Contractor of his responsibility for completing the work successfully in accordance with the contract documents.

1.9 TECHNICAL DATA SUBMITTAL

- .1 All technical data on the piling system proposed for the project shall be submitted to the Consultant for review by the Departmental Representative a minimum of ten (10) working days prior to commencement of the work. Information shall include:

- .1 Drilling and installation procedures, such as: drilling method; testing and remedial testing.
- .2 Equipment description, such as: drilling equipment; and equipment used for testing.
- .3 Mill test reports for pile materials.
- .4 Reference design load and depth criteria to achieve loads.
- .5 Calibration records for testing equipment used for load testing. Certificates must be less than six (6) months old.

1.10 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Deliver new, undamaged materials to site, accompanied by certified test reports, with manufacturer's logo and mill identification mark provided on pipe piling.
- .3 Storage and Protection:
 - .1 Store and handle pipe piling in accordance with manufacturer's written instructions to prevent permanent deflection, distortion or damage to interlocks.
 - .2 Support pipe piling on level blocks or racks spaced not more than 3 m apart and not more than 0.60 m from ends.
 - .3 Store pipe piling to facilitate required inspection activities and prevent damage to coatings and corrosion prior to installation.
- .4 Waste Management and Disposal:
 - .1 Separate waste materials for recycling or reuse.
 - .2 Divert unused metal materials from landfill to metal recycling facility as approved by Departmental Representative.
 - .3 Unused paint or coating material must be disposed of at an official hazardous material collections site as approved by Departmental Representative.
 - .4 Unused paint material must not be disposed of into sewer system, into streams, lakes, onto ground or in any other location where it will pose a health or environmental hazard.

Part 2 PRODUCTS

2.1 MATERIALS

- .1 Steel pipe: straight longitudinal seam, of sizes and wall thicknesses indicated, plain cut ends.
- .2 Pipe material to be specified by the Specialty Engineer.
- .3 All components in contact with soil or wood are to be painted with inorganic zinc to MPI #19.

2.2 EQUIPMENT

- .1 Impact hammers: provide manufacturer's name, type, rated energy per blow at normal working rate, mass of striking parts of hammer, mass of driving cap and type and elastic properties of hammer and pile cushions.
- .2 Non-impact methods of installation such as augering, jacking, vibratory hammers or other means: provide full details of characteristics necessary to evaluate performance.
- .3 Hammer:
 - .1 Hammers to be selected on basis of driveability analysis using wave equation theory, performed to show that piles can be driven to levels indicated.
 - .2 Driveability analysis to include, but not be limited to, following: hammer, cushion, and cap block details; static soil parameters; quake and damping factors, total soil resistance, blow count, pile stresses and energy throughput at representative penetrations.
 - .3 When required criteria can not be achieved with the proposed hammer, use larger hammer and take other measures as required.

Part 3 EXECUTION

3.1 PAINTING AND COATING

- .1 Painting requirements include surface preparation of outer surfaces of piling including pile caps , application of inorganic zinc coating and touch-up after delivery if necessary.
- .2 Paint piles as specified by Departmental Representative
- .3 Surface preparation:
 - .1 Sand or grit blast in accordance with SSPC-SP2.
 - .2 When blasting is completed remove dust by brush or vacuum prior to painting.
 - .3 Remove oil, grease or organic matter, with approved solvents or detergents prior to painting.
 - .4 Apply first coat of paint same day as completion of sand or grit blasting.
- .4 Application:
 - .5 Apply three coats, each in accordance with manufacturer's recommendations.
 - .6 First coat, inorganic zinc: apply to average 75 micrometres dry-film thickness and minimum 65 micrometres thickness.
 - .7 Painted surfaces to be free from sags and runs.

3.2 PREPARATION

- .1 Protection:
 - .1 Protect adjacent structures, services and work of other sections from hazards due to pile driving operations.

- .2 Arrange sequencing of pile driving operations and methods to avoid damages to adjacent existing structures.
- .3 When damages occur, remedy damaged items to restore to original or better condition at own expense.
- .4 Ensure that ground conditions at pile locations are adequate to support pile driving operation and load testing operation.
- .5 Make provision for access and support of piling equipment during performance of Work.

3.3 INSTALLATION

- .1 Leads: construct pile driver leads to provide free movement of hammer.
 - .1 Hold leads in position at top and bottom, with guys, stiff braces, or other means to ensure support to pile while being driven.
 - .2 Length: provide sufficient length of leads to ensure that use of follower is unnecessary.
 - .3 Swing leads: Firmly guy top and bottom to hold pile in position during driving operation.
- .2 Followers: If required, provide followers of such size, shape, length and mass to permit driving pile in desired location to required depth and resistance.
- .3 Drive applicable load test piles using similar follower.
- .4 Allowable design load capacity of pile at load is as indicated.
- .5 Installation of each pile will be subject to review of Departmental Representative.
- .6 Geotechnical Engineer will be sole judge of acceptability of each pile with respect to final driving resistance, depth of penetration or other criteria used to determine load capacity.
- .7 Departmental Representative to review final driving of all piles prior to removal of pile driving rig from site.
- .8 Determine required driving resistance from load test on a test pile as directed by Geotechnical Engineer.
- .9 Drive each pile to practical refusal in bedrock.
- .10 Do not overdrive to cause damage to piles in bedrock.
- .11 Touch up scratched or uncoated surfaces with three applications of inorganic zinc coating, as required by Departmental Representative.

3.4 APPLICATION / DRIVING

- .1 Piles with damaged heads as determined by Departmental Representative will be rejected.
- .2 Hold piles securely and accurately in position while driving.
- .3 Deliver hammer blows along axis of pile.
- .4 Ensure no contact between pile and structure takes place when driving batter piles adjacent to existing structures.
- .5 Restrike already driven piles lifted during driving of adjacent piles to confirm set.

- .6 Remove loose and displaced material from around piles after completion of driving, and leave clean, solid surfaces to receive foundation concrete.
- .7 Use of water jet:
 - .1 If permitted, provide details for review.
 - .2 Restriction: when conditions are unacceptable, as determined by Departmental Representative, stop using water jet.
- .8 Cut off piles neatly and squarely at elevations as indicated [to tolerance of plus or minus 5mm] .
 - .1 Provide sufficient length above cut-off elevation so that part damaged during driving is cut off.
 - .2 Do not cut tendons or other reinforcement, which will be used to tie pile caps to pile.
- .9 Remove cut-off lengths from site on completion of work.

3.5 OBSTRUCTIONS

- .1 Where obstruction is encountered that causes sudden unexpected change in penetration resistance or deviation from specified tolerances, proceed as directed by Geotechnical Engineer.

3.6 REPAIR AND RESTORATION

- .1 Pull out rejected piles and replace with new piles.
- .2 Remove rejected pile and replace with new, and if necessary, longer pile.

3.7 FIELD QUALITY CONTROL

- .1 Pile Driving Analyzer:
 - .1 Use Pile Driving Analyzer and Wave Equation Analysis to determine and confirm driving criteria such as hammer size and variation in impact, suitability of driving cap and cushions and penetration resistance relative to set on [[at least]] start of pile placement.[_____]
- .2 Confirm criteria during pile installation by using Pile Driving Analyzer and Wave Equation Analysis on piles as determined by Geotechnical Engineer.
- .3 Work to be performed by geotechnical engineer registered or licensed in Province of British Columbia
- .4 Measurement:
 - .1 Maintain accurate records of driving for each pile, including:
 - .2 Type and make of hammer, stroke or related energy.
 - .3 Other driving equipment including water jet, driving cap, cushion.
 - .4 Pile size and length, location of pile in pile group, location or designation of pile group.
 - .5 Sequence of driving piles in group.

- .6 Number of blows per metre for entire length of pile and [set for last<empty/>blows] [number of blows per<empty/>mm for last<empty/>mm] .
- .7 Final tip and cut-off elevations.
- .8 Other pertinent information such as interruption of continuous driving, pile damage.
- .9 Record elevation taken on adjacent piles [during] before and after driving of each pile.
- .5 All measurements, observations and calculations associated with pile driving analyzer and wave equation analysis.
- .6 Provide Departmental Representative with digital copies of records.

3.8 WELDING

- .1 Weld to CSA W59.
- .2 Welding certification of companies: to CSA W47.1.
- .3 Welding certification of companies welding steel reinforcing bars placed in reinforced concrete: in accordance with CSA W186.

3.9 CLEANING

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION