

**Release of Updated Apprenticeship Training Standards
Heavy Equipment Operator (HEO) – Tractor Loader Backhoe (636A)
Heavy Equipment Operator (HEO)– Excavator (636B)
Heavy Equipment Operator (HEO) – Dozer (636C)**

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| Trade Names & Codes | Heavy Equipment Operator – Tractor Loader Backhoe (636A) Heavy Equipment Operator – Excavator (636B) Heavy Equipment Operator – Dozer (636C) |
| Release Date of New Standards | Monday March 13th, 2023 released as Versions 300 |
| Implementation Plan | <ul style="list-style-type: none"> • Apprentices who began their apprenticeships on the former 2002 Schedules of Training can complete their program using the performance objectives in those standards. • All apprentices with initial training agreements registered on or after Monday March 13th, 2023 must be trained to the new Apprenticeship Training Standard Logbooks. |
| Impact on Curriculum Standards or Related Trades | <ul style="list-style-type: none"> • The previous 2002 Schedules of Training for the 3 Heavy Equipment Operator trades are being eliminated, including the original learning outcomes that were encompassed in those combined documents. A separate and expanded Curriculum Standard with both core and non-common core reportable subjects has also been completed. • Each of the three Heavy Equipment Operator trades will have their own Apprenticeship Training Standard Logbook. • The 3 x Training Standards will be released at the same time. The Curriculum Standard will follow, at a later date. |
| Training Standard Access | <p>Upon implementation:</p> <ul style="list-style-type: none"> • The 3 new Apprenticeship Training Standards will be available on the Trades Information – Skilled Trades Ontario website. • Apprentices are required to have these Logbooks signed-off for the purpose of meeting completion requirements. |
| Skill(s) &/or Skill Set(s) Added or Changed | The Apprenticeship Training Standards for the 3 Heavy Equipment Operator trades (636A, 636B and 636C) have been completely overhauled to ensure harmonization with the Red Seal National Occupational Analyses released in 2015 as well as to include many competencies not previously included in the 2002 Schedule of Training documents. |

Skill(s) &/or Skill Set(s) Added or Changed

The previous 2002 Schedules of Training for each of the 3 HEO trades only included the following 5 Skill Sets:

1. Safety
2. Pre-Operation Inspection
3. General Preventative Maintenance
4. Operate Excavator /Dozer/TLB
5. Transporting Equipment

With the new versions of the 3 Apprenticeship Training Standards, the number of Skill Sets has doubled in comparison to those previous 2002 Schedules of Training. The new Apprenticeship Training Standard for each of the 3 HEO Trades are now structured and divided into the following **10 Skill Sets**:

1. **Protect self and others (pre and post operational safety)**
2. **Protect self, others and the environment (operational safety)**
3. **Organize the work**
4. **Perform pre-operational inspection**
5. **Perform scheduled and preventative maintenance**
6. **Inspect and use tools, instruments and equipment**
7. **Perform basic TLB/Excavator/Dozer functions**
8. **Transport TLB/Excavator/Dozer and attachments/implements**
9. **Perform post-operational inspection and storage**
10. **Operate TLB/Excavator/Dozer**

The chart below shows the percentage increase from the 2002 Schedules of Training to the 3 New Apprenticeship Training Standards in both the number of Skill Sets and Number of Skills:

| | 2002 HEO TLB Schedule of Training | 2002 HEO Excavator Schedule of Training | 2002 HEO Dozer Schedule of Training | New HEO TLB Apprenticeship Training Standard | New HEO TLB Apprenticeship Training Standard | New HEO TLB Apprenticeship Training Standard |
|---|--------------------------------------|--|--|--|--|--|
| # of Skill Sets | 5 | 5 | 5 | 10 | 10 | 10 |
| # of Skills | 28 | 27 | 25 | 58 | 59 | 54 |
| Percentage increase between 2002 and new drafts – Skill Sets | | | | 100% increase in number of skill sets | 100% increase in number of skill sets | 100% increase in number of skill sets |
| Percentage increase between 2002 and new drafts – Skills | | | | 107% increase in number of skills | 118% increase in number of skills | 116% increase in number of skills |

Skill(s) &/or Skill Set(s) Added or Changed

The new Skill Sets are more accurately and directly reflective of the blocks, tasks and sub-tasks in the National Occupational Analyses for these three trades which are framed as follows:

- Block A: Common occupational skills
 - task 1 Uses and maintains tools and equipment
 - task 2 Maintains safe work environment
 - task 3 Organizes work
- Block B Heavy equipment inspection and basic maintenance
 - task 4 Performs scheduled maintenance
 - task 5 Performs inspections
- Block C Heavy equipment operator tasks
 - task 6 Performs basic heavy equipment operator functions
 - task 7 Transports equipment
 - task 8 Operates...

Many of the new skills reflect the new sub-tasks in the 3 National Occupational Analyses.

In the comparison chart below, the new skill sets and skills content in all 3 of the new Training Standards are underlined and reflect the addition of completely new skill sets and/or skills that were missing/omitted from the 2002 documents and/or reflective of technological, work process and capacity changes. In the same chart, the two last columns reflect the limited content from the 2002 Schedules of Training.

| New Skill Sets 636A, 636B, 636C | New Skills – HEO TLB (636A) | New Skills – HEO Excavator (636B) | New Skills – HEO Dozer (636C) | Comparison - Corresponding Old Skill Sets– Schedules of Training 636A, 636B & 636C | Comparison - Corresponding Old Skills – Schedules of Training 636A, 636B, 636C |
|--|---|---|---|--|---|
| Protect self and Others (Pre-operational Safety) | <ol style="list-style-type: none"> <u>1. Conduct job safety analysis</u> 2. Use PPE 3. Maintain PPE <u>4. Use operator’s manual</u> <u>5. Use safety equipment</u> 6. Communicate with others <u>7. Manage health and wellness</u> | <ol style="list-style-type: none"> <u>1. Conduct job safety analysis</u> 2. Use PPE 3. Maintain PPE <u>4. Use operator’s manual</u> <u>5. Use safety equipment</u> 6. Communicate with others <u>7. Manage health and wellness</u> | <ol style="list-style-type: none"> <u>1. Conduct job safety analysis</u> 2. Use PPE 3. Maintain PPE <u>4. Use operator’s manual</u> <u>5. Use safety equipment</u> 6. Communicate with others <u>7. Manage health and wellness</u> | <i>This skill set did not exist in old Schedule of training – there was only 1 safety section in the old schedules of training</i> | <i>Did not exist</i> |
| Protect Self, Others and the Environment (Operational Safety) | <ol style="list-style-type: none"> 1. Mount and dismount excavator <u>2. Perform spill control procedures</u> <u>3. Perform erosion and sediment control procedures</u> <u>4. Handle Materials</u> <u>5. Minimize the environmental footprint</u> | <ol style="list-style-type: none"> 1. Mount and dismount excavator <u>2. Perform spill control procedures</u> <u>3. Perform erosion and sediment control procedures</u> <u>4. Handle Materials</u> <u>5. Minimize the environmental footprint</u> | <ol style="list-style-type: none"> 1. Mount and dismount excavator <u>2. Perform spill control procedures</u> <u>3. Perform erosion and sediment control procedures</u> <u>4. Handle Materials</u> <u>5. Minimize the environmental footprint</u> | Safety | <ol style="list-style-type: none"> 1. Wear and maintain PPE (A, B & C) 2. Demonstrate appropriate workplace actions (A, B & C) 3. Mount and dismount equipment (A, B & C) 4. Demonstrate safe operating practices (A, B & C) 5. Demonstrate appropriate worksite communication skills (A, B & C) |
| Organize Work | <ol style="list-style-type: none"> <u>1. Use documentation</u> <u>2. Determine methods of approach</u> <u>3. Interpret survey indicators and data</u> <u>4. Check grade</u> | <ol style="list-style-type: none"> <u>1. Use documentation</u> <u>2. Determine methods of approach</u> <u>3. Interpret survey indicators and data</u> <u>4. Check grade</u> | <ol style="list-style-type: none"> <u>1. Use documentation</u> <u>2. Determine methods of approach</u> <u>3. Interpret survey indicators and data</u> <u>4. Check grade</u> | <i>This skill set did not exist in the old schedules of training</i> | <i>Did not exist</i> |

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| Perform Pre-Operational Inspection | <u>1. Inspect TLB and attachments</u> <u>2. Complete pre-operational inspection sheet</u> | <u>1. Inspect excavator and attachments</u> <u>2. Complete pre-operational inspection sheet</u> | <u>1. Inspect dozer, attachments and implements</u> <u>2. Complete pre-operational inspection sheet</u> | Pre-operation inspection | 1. Perform pre-operational inspection (circle check) (A, B & C) |
| <u>Perform Scheduled Preventative Maintenance</u> | 1. Maintain TLB operator station 2. Perform basic maintenance <u>on TLB systems and components</u> 3. Lubricate TLB, components and attachments 4. Maintain TLB drive train systems, tires and rims 5. Perform basic maintenance on TLB attachments | 1. Maintain excavator operator station 2. Perform basic maintenance <u>on excavator systems and components</u> 3. Lubricate excavator, components and attachments <u>4. Maintain undercarriage and drive train systems (tracked excavator)</u> <u>5. Maintain drive train systems, tires and rims (rubber tire excavator)</u> 6. Perform basic maintenance on excavator attachments | 1. Maintain doze operator station 2. Perform basic maintenance <u>on dozer systems and components</u> 3. Lubricate dozer, components, attachments and implements 4. Maintain dozer undercarriage and drive train systems 5. Perform basic maintenance on dozer attachments and implements | General Preventative Maintenance | 1. Maintain operator station area (A, B & C) 2. Perform basic maintenance on front and wheel steering drives (A), Perform basic maintenance on track or rubber tire undercarriage (A & B), Perform basic maintenance on undercarriage and drives (C) 3. Perform basic maintenance on buckets and attachments (B), Perform basic maintenance on blade and ripper attachments (C) 4. Lubricate equipment, components and attachments (A, B & C) 5. Complete and maintain equipment log sheets and reports (A, B & C) |
| <u>Inspect and Use Tools, Instruments and Equipment</u> | <u>1. Use hand and power tools</u> <u>2. Maintain hand and power tools</u> <u>3. Use measuring and testing equipment</u> <u>4. Set up grade checking and tracking instruments</u> <u>5. Use grade checking and tracking instruments</u> | <u>1. Use hand and power tools</u> <u>2. Maintain hand and power tools</u> <u>3. Use measuring and testing equipment</u> <u>4. Set up grade checking and tracking instruments</u> | <u>1. Use hand and power tools</u> <u>2. Maintain hand and power tools</u> <u>3. Use measuring and testing equipment</u> <u>4. Set up grade checking and tracking instruments</u> | <i>This skill set did not exist in the old schedules of training</i> | <i>Did not exist</i> |

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| | <u>6. Use hoisting and rigging equipment</u> | <u>5. Use grade checking and tracking instruments</u> <u>6. Use hoisting and rigging equipment</u> | <u>5. Use grade checking and tracking instruments</u> | | |
| <u>Perform Basic ... Functions</u> | <ul style="list-style-type: none"> 1. Test TLB operation 2. Maintain control of TLB 3. Monitor performance of TLB 4. Troubleshoot TLB and attachment problems 5. Install TLB attachments 6. Change or remove TLB attachments 7. Replace TLB attachment guards and wear components 8. Brake steer the TLB | <ul style="list-style-type: none"> 1. Test excavator and attachment operation 2. Maintain control of excavator 3. Monitor performance of excavator 4. Troubleshoot excavator and attachment problems 5. Install excavator attachments 6. Change or remove excavator attachments 7. Replace excavator attachment guards and wear components | <ul style="list-style-type: none"> 1. Test dozer attachment and implement operation 2. Maintain control of dozer 3. Monitor performance of dozer 4. Troubleshoot dozer and attachment/implement problems 5. Install dozer attachments and implements 6. Change or remove dozer attachments and implements 7. Replace dozer and attachment / implement guards and wear components | <i>This skill set did not exist in the old schedules of training – the installation of attachments / implements and test equipment were the only skill that pre-existed and was part of the old operate skill set</i> | <i>Did not exist except for install attachments and test equipment which were part of another skill set</i> |
| <u>Operate</u> | <ul style="list-style-type: none"> 1. Perform TLB set up 2. Position TLB for task 3. Strip surface material 4. Stockpile material 5. Perform loading operations (trucks and hoppers) 6. Perform shuttling (pick and carry) operations 7. Excavate trenches, excavations and ditches 8. Create slopes and ramps 9. Backfill trenches and excavations 10. Compact material with attachments | <ul style="list-style-type: none"> 1. Perform excavator set up 2. Position excavator for task 3. Clear and grub land 4. Strip surface material 5. Stockpile material 6. Perform loading operations (trucks and hoppers) 7. Excavate trenches, excavations and ditches 8. Create slopes and ramps | <ul style="list-style-type: none"> 1. Perform dozer set up 2. Position dozer for task 3. Clear and grub land 4. Strip surface material 5. Move mass material 6. Perform cut and fill operations 7. Create slopes, ramps and ditches 8. Backfill trenches and excavations 9. Compact material 10. Spread material 11. Perform grading operations 12. Perform towing operations | <u>Operate...</u> | <ul style="list-style-type: none"> 1. Perform start up procedures (A, B & C) 2. Perform site planning and set up (A, B & C) 3. Install attachments (A, B & C) 4. Test equipment operation (A, B & C) 5. Perform excavating trenching operations (A, B & C) 6. Perform grading operations (A, B & C) 7. Perform loading operations (A, B) 8. Perform shuttling operations (A) |

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| | <u>11.Perform grading operations (TLB front end)</u> <u>12.Perform grading operations (TLB back end)</u> 13.Perform hoisting operations | 9.Backfill trenches and excavations <u>10.Compact material with attachments</u> 11.Perform grading operations 12.Perform hoisting operations <u>13.Perform demolitions</u> | | | 9.Perform backfilling operations (A, B & C) 10.Perform ramp building operations (A, B & C) 11.Perform stockpiling operations (A, B & C) 12.Perform hoisting operations (A, B) 13.Perform towing operations (C) 14.Shut down equipment (A, B & C) |
| <u>Perform Post Operational Inspection and Storage</u> | 1.Shut down TLB <u>2.Conduct post operational inspection of TLB and attachments</u> <u>3.Complete post operational inspection sheets</u> | 1.Shut down excavator <u>2.Conduct post operational inspection of excavator and attachments</u> <u>3.Complete post operational inspection sheets</u> | 1.Shut down dozer <u>2.Conduct post operational inspection of dozer, attachments and implements</u> <u>3.Complete post operational inspection sheet</u> | <i>Did not exist in old schedules of training except for the shut down skills that were part of the Operate skill set</i> | <i>Did not exist except shut down skills</i> |
| <u>Transport... and Attachments</u> | 1.Prepare TLB and attachments for transport 2. <u>Assist with</u> loading TLB and attachments for transport 3. <u>Assist in</u> securing TLB and attachments for transport 4. <u>Assist with</u> unloading TLB and attachments 5. <u>Drive TLB on the road</u> | 1.Prepare excavator and attachments for transport 2. <u>Assist with</u> loading excavator and attachments for transport 3. <u>Assist in</u> securing excavator and attachments for transport 4. <u>Assist with</u> unloading excavator and attachments 5. <u>Operate tracked excavator on the road</u> 6. <u>Drive rubber tire excavator on the road</u> | 1.Prepare dozer, attachments and implements for transport 2. <u>Assist with</u> loading dozer, attachments and implements for transport 3. <u>Assist in</u> securing dozer, attachments and implements for transport 4. <u>Assist with</u> unloading dozer, attachments and implements | <u>Transporting Equipment</u> | 1.Prepare to load the equipment and attachments (A, B & C) 2. Load the equipment and attachments (A, B & C) 3.Unload the equipment and attachments (A, B & C) 4.Transport rubber-tired machine (travelling and roading) (A and B only) |

Skill(s) &/or Skill Set(s) Added or Changed

Summary of critical new content in all 3 Training Standards includes but is not limited to:

- Clear distinction between wheeled/rubber-tired vs tracked systems.
- Expansion of competencies related to attachments and implements (this was a critical enhancement as the technology related to attachments and quick attach systems is growing exponentially, particularly for Excavators and Tractor Loader Backhoes).
- Distinction between attachments vs implements (dozer specific).
- Addition of various skills related to testing and maintenance of foundational/base equipment functions (i.e. testing and performance monitoring, troubleshooting, changing and removing attachments) – these are also critical functions for all 3 HEO trades in order to both ensure that the job(s) get done and to also provide important information to rental companies, supervisors and heavy duty equipment technicians (421As).
- Addition and enhancement of competencies that distinguish between front and back end operations (Tractor loader backhoe specific).
- Critical clarity (through content rewrite) in competencies related to equipment transportation (the new training standards clearly establish the role of the HEO to assist the float operator in Ontario) – previous skills in 2002 document were misleading.
- Significant expansion of the safety related skills into 2 distinct skill sets (pre-operational safety and operational safety) including an increase in the total safety skills from only 5 skills to a total of 12 skills between both skills sets including additional skills such as spill control, erosion and sediment control, environment footprint reduction, material handling, managing health and wellness of the operation, conducting job safety analyses.
- Significant expansion of the critical operation related skills including positioning the equipment for task (A, B and C), stripping surface material (A, B and C), clearing and grubbing land (B and C), moving mass material (C only), performing cut and fill operations (C only), creating slopes (A, B and C), creating ditches (A, B & C), compacting material (A, B and C), performing demolitions (B only), spreading material (C only), clearer distinctions between trucks and hoppers in loading operations (A and B).
- Addition of entirely new tools, equipment and instruments skill sets that did not exist at all in the 2002 documents – new content includes maintaining hand and power tools (which are critical for the maintenance and troubleshooting part of the HEO role – which was not adequately stated in the 2002 documents), setting up and using grade checking and tracking instruments as well as using hoisting equipment.
- Addition of an entirely new Organize Work skill set that did not exist at all before focusing on documentation use, methods of approach, survey indicators and data, grade checking – none of these competencies were present in the 2002 documents
- Addition and expansion of skills related to grade checking (under organize work and instrument use) were critical to reflect the increasing technical nature of the HEO job - requiring fine-tuned skills.
- Addition of a completely new skill set focusing on foundational and basic functions including troubleshooting, monitoring equipment performance, changing and

Skill(s) &/or Skill Set(s) Added or Changed

removing attachments, replacing wear components – these are critical daily functions performed by HEOs that were not present in the 2002 documents.

- Addition of completely new post operational checking and storage skill set that did not exist before – though the competencies for post operational checking and storage are related to those for pre-operational checking, they are not the same.

Examples of shared new skills or shared changes among all 3 of the new HEO Apprenticeship Training Standards include:

Conduct job safety analysis (JSA) (9326.01, 9342.01, 9357.01)

Rationale: The JSA is a critical part of the role of the HEO, no matter what machine. The JSA was not directly referenced in the 2002 documents at all.

Use Operator’s Manual (9326.03, 9342.03, 9357.03)

Rationale: The operator’s manual is a critical part of all actions performed by the HEO for the purpose of operation, maintenance, installation, repair/replace. As a result, the competency of using the manual, which includes navigating the information is a new skill.

Manage health and wellness (9326.06, 9342.06, 9357.06)

Rationale: Tasks performed by operators can be long and tedious. As a result, a skill was added to ensure that new operators have the competencies to manage their personal health and wellness for the safety of themselves and others. This skill parallels a related skill in another operator trade (tractor trailer commercial driver).

Environmental Related Skills (part of protect self and others (operational safety)).

Perform erosion and sediment control procedures (9327.03, 9343.02, 9358.02)

Perform spill control procedures (9327.02, 9343.03, 9358.03)

Handle materials (9327.04, 9343.04, 9358.04)

Minimize the environmental footprint (9327.05, 9343.05, 9358.05)

Rationales: The first of these three skills above reflect sub-tasks in the new National Occupational Analyses for the 3 HEO trades and are related to learning outcomes in the new curriculum related to soil fundamentals and environmental protection. The fourth new skill related to minimizing the environmental footprint reflects the HEO’s responsibility related to a number of environmental / green requirements including emission related competencies like reducing idling time etc.

New Skill Set and Skills related to organizing work and trade practices:

The new skill sets on “organize work” (9328, 9344, 9359) reflect competencies in a parallel to the 3 new National Occupational Analyses. These new skill sets include 4 skills previously not referenced in the 2002 schedules of training; Using documentation; Determining Methods of Approach; Interpreting Survey Indicators and Data; Checking Grade. These are part of daily competencies performed by the HEO and were missing from the previous documents.

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| <p>Skill(s) &/or Skill Set(s) Added or Changed</p> | <p>Adapted Skill Sets – Perform Pre-operational Inspection (9329, 9345, 9360) The skills within the pre-operational inspection skill sets, which were part of the 2002 original schedules of training (Pre-operation Inspection), have been enhanced to include clearer detail that is specific to each piece of equipment. Therefore, there is variation in the detail between the 3 HEO trades.</p> <p>Adapted Skill Sets – Perform scheduled and preventative maintenance (9330, 9346, 9361) The original skill sets related to “general preventative maintenance” have been changed to “perform scheduled and preventative maintenance”. The change ensures both the scheduled maintenance responsibilities and corresponding skills to perform those responsibilities are now included. Furthermore, the skills within these skill sets are much more detailed and include the following skills for a more holistic approach that is also reflective of Red Seal skills: Maintain operator station (previously existed), Perform basic maintenance (new), Lubricate components and attachments (previously existed), Maintain drive train systems, tires and rims (TLB and Excavator only) (previously existed), Maintain undercarriage and drive train systems (Excavator and Dozer only) (previously existed); Perform basic maintenance on attachments (previously existed).</p> <p>New Skill Sets – Inspect and use tools, instruments and equipment (9331, 9347, 9362) To reflect Red Seal competencies as well as to reflect a complete omission of these skills in the 2002 Schedules of Training, a new skill set on tools, instruments and equipment was added to all three HEO logbooks. These skill sets include the following skills: Use and Maintain hand and power tools; Use measuring and test equipment; Set up grade checking and tracking instruments; Use grade checking and tracking instruments; Use hoisting and rigging equipment (for Excavator and TLB only).</p> <p>New Skill Sets – Perform basic functions (9332, 9348, 9363) These new skill sets parallel Red Seal National Occupational Analyses and reflect competencies related to daily operational tasks that are distinct from unique or specific operations for each trade and were completely omitted from the 2002 Schedules of Training. They include the following skills: Testing equipment and attachment operation (existing skill); Maintain control of the equipment; Monitoring performance of the equipment; Installing/changing or removing attachments (and implements for dozer only) (existing skill); replacing guards and wear parts. Note: A few of these skills were previously covered in the operations skill set of the 2002 Schedules of Training.</p> <p>Enhanced Operation Skill Sets (9333, 9349, 9364) The operation skill sets for all three HEO trades were enhanced to parallel tasks recognized in the Red Seal National Occupational analyses as well as omitted competencies from the 2002 Schedules of Training. Details were added to all existing skills as well. The following operational skills are now reflected in the new logbooks:</p> |
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Operate Tractor Loader Backhoe:

- Perform TLB set up (existing skill)
- Position TLB for task (new skill)
- Strip surface material (new skill)
- Stockpile material (existing skill)
- Perform loading operations (trucks and hoppers) (existing skill)
- Perform shuttling (pick and carry) operations (existing skill)
- Excavate trenches, excavations and ditches (existing skill)
- Create slopes and ramps (existing skill just focused on ramps)
- Backfill trenches and excavations (existing skill)
- Compact material with attachments (new skill)
- Perform grading operations (tractor loader backhoe front end) (distinction between ends in separate skills is new)
- Perform grading operations (tractor loader backhoe back end) (distinction between ends in separate skills is new)
- Perform hoisting operations (existing skill)

Operate Excavator:

- Perform dozer set up (existing skill)
- Position dozer for task (new skill)
- Clear and grub land (new skill)
- Strip surface material (new skill)
- Stockpile material (existing skill)
- Perform loading operations (trucks and hoppers) (existing skill)
- Excavate trenches, excavations and ditches
- Create slopes and ramps (existing skill just focused on ramps)
- Backfill trenches and excavations (existing skill)
- Compact material with attachments (new skill)
- Perform grading operations (existing skill)
- Perform hoisting operations (existing skill)
- Perform demolitions (new skill)

Operate Dozer:

- Perform dozer set up (existing skill)
- Position dozer for task (new skill)
- Clear and grub land (new skill)
- Strip surface material (new skill)
- Move mass material (new skill)
- Perform cut and fill operations (new skill)
- Create slopes, ramps and ditches (existing skill just focused on ramps)
- Backfill trenches and excavations (existing skill)
- Compact material (new skill)
- Spread material (new skill)
- Perform grading operations (existing skill)
- Perform towing operations (existing skill)

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| | <p>New Skill Set – Perform post operational inspection and storage (9334, 9350, 9365) Skill related to shut down (9334.01, 9350.01 and 9365.01) (previously parts of the operate skill sets) are now moved to these new post operational skill sets. New skill – Conduct post operational inspection (9334.02, 9350.02, 9365.02) – missing from 2002 Schedules of training – includes locking and storage competencies New skill – Complete post operational inspection sheets (9334.03, 9350.03, 9365.03) – missing from 2002 Schedules of training.</p> <p>Enhanced and adapted Skill Set – Transport...(9335, 9351, 9366) Previous skills related to “load” and “unload” in all three HEO trades were changed to “assist with loading” and “assist with unloading”. Rationale: In Ontario, it is the role of the haulage truck driver to load, secure and unload. The Heavy Equipment Operator will usually assist with the task. New skills related to securing: Assist with securing...for transport (9335.03, 9351.03, 9366.03) – in Red Seal NOAs – previously missing from 2002 Schedules of Training.</p> <p>Tractor Loader Backhoe only new skills</p> <p>In the basic functions’ skill set, the following new unique skill was added for TLB: 9332.07 Brake steer the tractor loader backhoe.</p> <p>In the operations skill set, the grading operations were divided into two separate skills for front end and back end activity. This is unique to TLB.</p> <p>In the transport skill set, the following skill replaces old skill 5.4 “transport rubber tire machine (travelling/roading); 9351.06 Drive tractor loader backhoe on the road. This change allows more clearly for the distinction between the terminology for operating tracked machines (dozer and excavator only) vs wheeled machines on the road.</p> <p>Excavator only new skills</p> <p>In the transport skill set, the following skill replaces old skill 5.4 “transport rubber tire machine (travelling/roading); 9351.06 Drive Rubber tire excavator on the road. In addition, the following new skill was added; 9351.05 Operate tracked excavator on the road.</p> <p>In the operation skill set, clear and grub land is a new unique skill to dozer and excavator only. Perform demolitions is a new unique skill to excavator only.</p> <p>Dozer only new skills</p> <p>In the operation skill set, move mass material and spread material are new skills unique to dozer only. Clear and grub land is a new skill unique to dozer and excavator only.</p> |
| <p>Optional Skills Become Mandatory</p> | <p>Not applicable: There were previously not any optional skills in either of the 3 HEO Schedules of Training from 2002.</p> |

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| <p>Change: New Optional Skills or Mandatory Skills Become Optional</p> | <p>HEO-Dozer:</p> <p>There are two new optional skills in the Dozer training standard.</p> <p>New optional skill for the Dozer Training Standard:</p> <p>9363.04 Install and remove dozer attachments and implements</p> <p>Rationale: The installation and removal of attachments for the dozer is not usually done by the operator. Firstly, unlike TLB and Excavator, there are not as many attachments for a dozer (winch, ripper). Second, they are much more difficult to remove and typically the dozer arrives with the attachment on it.</p> <p>9358.02 Perform spill control procedures</p> <p>Rationale: The actual performance of spill control related procedures will only occur if a spill actually happens. In the case that it does not, apprentices should be aware from a knowledge/learning outcome perspective of the process but may not actually have to perform it during their apprenticeship.</p> <p>HEO-Excavator:</p> <p>There are two new optional skills in the Excavator training standard:</p> <p>9351.06 Drive rubber tire excavator on the road</p> <p>Rationale: Rubber tire or wheeled excavators are still more uncommon than common in Ontario. The average apprentice right now may not have the opportunity to drive the rubber tire excavator on the road.</p> <p>9343.02 Perform spill control procedures</p> <p>Rationale: The actual performance of spill control related procedures will only occur if a spill actually happens. In the case that it does not, apprentices should be aware from a knowledge/learning outcome perspective of the process but may not actually have to perform it during their apprenticeship.</p> <p>HEO-Tractor Loader Backhoe:</p> <p>There is one new optional skill in the Tractor Loader Backhoe training standard:</p> <p>9327.02 Perform spill control procedures</p> <p>Rationale: The actual performance of spill control related procedures will only occur if a spill actually happens. In the case that it does not, apprentices should be aware from a knowledge/learning outcome perspective of the process but may not actually have to perform it during their apprenticeship.</p> |
| <p>Skills Moved</p> | <ul style="list-style-type: none"> • Skills related to shut down (9334.01, 9350.01 and 9365.01) (previously parts of the operate skill sets) are now moved to the new post operational skill sets. • Skills related to testing equipment and attachment operation; Installing/changing or removing attachments previously covered in the operations skill set of the 2002 Schedules of Training are now covered in the new perform basic functions skill sets. |

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| Skill(s) or Skill Set(s) Removed | <p>No skills have been removed as the original Schedules of Training for the 3 HEO trades were very basic. However, due to the restructuring of the 3 documents, skills and skill sets have been enhanced so much that most skills and skill sets are not in the original form at all.</p> |
| General Notes & Rationale | <ul style="list-style-type: none"> • Inspiration and Impetus for the HEO Trades’ Training Standards’ Overhaul: <ul style="list-style-type: none"> ○ The restructuring of all the Red Seal programs for the HEO trades (which was inspired by the existing Ontario provincial structure of 3 unique program for each piece of equipment). ○ Ontario’s leadership and support in reviewing, overhauling and updating all the 6 Red Seal products and 9 Red Seal examinations to reflect the new interprovincial structures. ○ Ontario’s adoption of the Red Seal endorsement for each of the 3 HEO trades. ○ Extreme age of the existing Ontario documents (2002). ○ Original 2002 Schedules of Training document structures were extremely limiting – there was a critical need for a full Curriculum Standard and 3 unique and independent Training Standards to reflect the broad array of learning outcomes and performance objectives for these trades, particularly since they are competency-based trades. ○ Significant content gaps in the existing 2002 Schedules of Training, which were not reflective of both the learning needs in 2002 and now as well as not reflective of content in the updated Red Seal standards. ○ Critical content gaps related to the environment, health and safety, tools and instruments, soil conditions, equipment operations, attachments and implements. • Transition from Schedules of Training to Full Apprenticeship Training Standards: <ul style="list-style-type: none"> ○ The products for each of the three Heavy Equipment Operator trades (636A, 636B and 636C) have transitioned from the Schedule of Training models to three distinct Apprenticeship Training Standards. ○ Learning outcomes and objectives have been removed and are included in a distinct new curriculum standard document with common core and non-common core reportable subjects to cover all three HEO trades. • 3 Distinct Apprenticeship Training Standards: <ul style="list-style-type: none"> ○ While there are overlapping/transferrable skills between the 3 new HEO training standards, each Apprenticeship Training Standard is distinct and specific to the trade it covers. There are unique and trade specific differences even within common skills for each piece of equipment. |

General Notes & Rationale

- **Basic Structure of the 3 New Apprenticeship Training Standards:**
 - The Training Standard revision for Heavy Equipment Operator – Tractor Loader Backhoe includes 10 skill sets and 58 skills (formerly 5 skill sets and 28 skills).
 - The Training Standard revision for Heavy Equipment Operator – Excavator includes 10 skill sets and 59 skills (formerly 5 skill sets and 27 skills).
 - The Training Standard revision for Heavy Equipment Operator – Dozer includes 10 skill sets and 54 skills (formerly 5 skill sets and 25 skills).
- **Age of original Schedules of Training and need for Red Seal Harmonization:**
 - The 3 original Schedules of Training were last updated in 2002 and were no longer reflective of industry needs. All of the changes to all 3 Apprenticeship Training Standards reflect the evolution of the HEO trades and industry needs.
 - Furthermore, with the implementation of the 3 Red Seal endorsements in Ontario as of February 27, 2017 for all 3 HEO trades, the revisions and enhancements were critical to ensure harmonization with the Red Seal National Occupational Standards and Interprovincial guides. The 2002 documents did not adequately or accurately reflect the competencies in the Red Seal documents.
- **Why is the restructuring of the Red Seal endorsements relevant to the implementation of the 3 new Apprenticeship Training Standards in Ontario?**
 - The Red Seal consultation and implementation process for the new Red Seal endorsement structures for Heavy Equipment Operators was one of the main trigger points for initiating a review and full update of the provincial curriculum documents for the 3 Heavy Equipment Operator trades.
 - Since Ontario played a critical role in the restructuring of the Red Seal endorsement programs for these 3 trades and because the new models at the Red Seal level directly parallel the existing Ontario program structure, it was critical that Ontario's performance objectives on the job were harmonized, standardized and expanded to fully reflect the updated Interprovincial content.
 - For these 3 trades, the availability of Red Seal examinations and endorsements in Ontario through the Apprenticeship pathways and the Certificate of Qualification process, have become important markers for proof of competency/training in these sectors.
- **HEO Trades as competency-based trades and the importance of accurate and up to date skill sets and skills:**
 - It is important to note that the 3 HEO Trades are competency-based trades (formerly competency-based trades under the Apprenticeship Certification Act). As such, the totality of the skill sets and skills and their details are critical as the Training Standards are the primary tool for monitoring and documentation the apprenticeship completion process.

General Notes & Rationale

- It is also important to note that the addition and enhancement of these skill sets and skills and their harmonization with the Red Seal standards is critical to ensure Ontario's success in Red Seal examinations.
- The new logbooks now include a list of recommended certifications and training as well as links to relevant resources.
- **Enhancements to occupational health and safety skill sets and template content – 2018 review by Ministry of Labour:**
 - In 2018, the Ministry of Labour reviewed the 3 new Apprenticeship Training Standard drafts for the HEO trades and provided feedback.
 - The feedback was reviewed, validated and integrated into the 3 documents.
 - The additional content includes the following HEO specific safety reminders:

Important Safety Reminders for Heavy Equipment Operators:

Underground and Overhead Utility work:

Heavy Equipment Operators may work around underground and overhead utilities. As a result, it is critical, for the safety of the operator, co-workers and the public, that Heavy Equipment Operators follow legislative and regulatory requirements. The Electrical Safety Authority and the Technical Standards and Safety Authority have established 2 important guidelines:

 - *Guideline for excavation in the vicinity of utility lines*
 - *Guideline for the proximity to distribution lines*

Trenching work:

Heavy Equipment Operators are frequently engaged in trenching and deep excavation work. As a result, it is important for Heavy Equipment Operators to adhere to the applicable legislation, regulation and standard when it comes to trenching safety. Part III of O. Reg 213/91 establishes the minimum requirements regarding excavations.

Reversing Equipment:

When operating heavy equipment, Heavy Equipment Operators may encounter blinds spots, depending on the equipment being operated. Blinds spots are a leading cause of struck-by injuries and fatalities on construction sites. Accident prevention strategies require 4 key elements; site planning, signalers, training and electronic devices.
- **Other Additions:**
 - The new Apprenticeship Training Standards now include:
 - acronyms' list
 - trade specific glossary of term(s)